

**Are decarbonisation transitions  
deliberately accelerated?  
The European Commission and the making of  
EU mobility policy**

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A thesis submitted to the School of Environmental Sciences of the University of East Anglia (UEA)  
in partial fulfilment of the requirements for the degree of Master of Philosophy

**August 2022**

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## **Abstract**

Transition scholars have studied the deliberate acceleration of transitions by public authorities, as well as shallower and deeper incumbency associated with public authorities impeding the acceleration. They have considered acceleration through policy mixes for transitions, impeded by transition conflicts and the use of strategies by actors (addressed in the literature through the integration of transition studies and policy studies) as well as impeded by structures emerging from the micro-politics of transition processes. Existing research has mostly addressed those different acceleration aspects separately. This thesis then responds to the literature's precautionary call to address those different aspects together. It does so by applying a policy studies-based theoretical framework – with a Narrative Policy Framework basis, complemented by elements from discursive institutionalism and 'policy work theory' – to a transition case study.

The thesis explores the deliberate acceleration of the (urban people) mobility decarbonisation transition by the European Commission. It focuses on the making of the Commission's 2011 Transport White Paper, the EU's last ten-year policy strategy (2011 to 2020) regarding mobility. It analyses this process using content analysis of the relevant documents, with subsequent qualitative data analysis through process tracing.

The thesis found that the policy outcome (the 2011 Transport White Paper) showed an encompassing, but not balanced policy instrument mix for transitions. It found a 'tentative' instrument mix encompassing mostly 'traditional' environmental economics-based solutions, as well as to a lesser extent 'novel' innovation studies-based and social practice theory-based solutions. The deployment of policy narratives was shaped by the policy-making context, and the deployment of narratives influenced the instrument mix. In particular, actors and/or coalitions putting forward novel solutions used a 'fit and conform' strategy as regards the substantiation of solutions, especially in the context corresponding, later on in the process, to the 'traditional' authoritative choice and structured interaction policy work accounts. Yet, there was also a noteworthy exception to this: actors and/or coalitions putting forward novel solutions used a 'stretch and transform' strategy as regards the substantiation of solutions, in the context unequivocally corresponding to the 'novel' social construction policy work accounts.

The thesis ultimately assessed the interplay of deliberate acceleration and incumbencies. Such an assessment should ultimately allow moving beyond the precautionary argument for considering the different deliberate acceleration aspects, towards assessing their relative importance.

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## **Abbreviations**

**ACF** – Advocacy Coalition Framework

**DI** – Discursive Institutionalism

**MLP** – multi-level perspective

**NPF** – Narrative Policy Framework

**SPT** – Social Practice Theory

**STS** – Science and Technology Studies

**TIS(s)** – Technological Innovation System(s)

**Commission** – European Commission

**Directorate-General** – DG

**DG MOVE** – DG Mobility and Transport

**DG TREN** – DG Energy and Transport

**EU** – European Union

**GHG** – greenhouse gases

**IA** – Impact Assessment

**ISC** – Inter-Service Consultation

**ICT** – Information and Communication Technologies

**ITS** – Intelligent Transport Systems

**MS(s)** – Member State(s)

**R&D** – Research and Development

## **Acknowledgements**

Thank you to my primary supervisor Andy Jordan, for launching me on the path of a thesis integrating transition studies and policy studies. And, for fostering my development as an independent researcher throughout the PhD process. Thank you also to my second supervisor John Turnpenny, for always challenging me to become a better researcher and writer. In addition, thank you to Jason Chilvers, for useful research suggestions later in the PhD process.

Moreover, thank you to Andrew Manning, for helping me get through a challenging time during the PhD process. And, thank you to UEA colleagues for their advice and company – in particular Brendan Moore and Jonas Schoenefeld.

Thank you to my internal examiner Noel Longhurst and my external examiner Qianqing Mai for feedback on an earlier draft of the thesis, which helped me to greatly improve the thesis. Thank you also to Adrian Rinscheid for his valuable feedback on a conference paper based on this thesis, which I presented at the 5<sup>th</sup> International Conference on Public Policy.

Furthermore, thank you to my parents Uta and Reinhard Priebe for continuous logistic and emotional support (including my father for proofreading the thesis). Thank you to Sofia Villanueva for great advice, and for when needed always shifting my attention away from the PhD process to what really matters in life.

Thank you also to my friends in Norwich for always making me feel at home – in particular Cristina, Andre, Ulysse, Nico and Marina. And, thank you to my friends in Brussels for always welcoming me back – especially Lucia, Dijana, Nicholas, Sonsoles and Paul.

## Chapter 1 – Introduction

### 1.1. Deliberate acceleration of transitions by public authorities

Every day we use “societal services” or rather “societal functions” – such as energy supply and personal transport or rather mobility, as well as water supply and food supply (Markard et al. 2012: 956; Sorrell 2017: 3; Köhler et al 2019: 2).<sup>1</sup> We therefore rely on “cluster[s] of social and technical entities that are collectively termed ... sociotechnical system[s]” that supply those societal services (Sorrell 2017: 3). “Socio-technical systems” are defined as “systems ... of (networks of) actors (individuals, firms, and other organizations) and institutions (societal and technical norms, regulations, standards of good practice), as well as material artifacts and knowledge” (Markard et al. 2012: 956). And, we rely on the interactions of the different components of socio-technical systems, which ultimately allow the supply of the societal services (Sorrell 2017: 3; Markard et al. 2012: 956).

The supply of the societal services, however, poses “fundamental sustainability challenges”, including “environmental and social problems, [as well as] economic problems” (Markard et al. 2012: 955). Environmental problems have been identified as the greatest concern – in particular “climate change, loss of biodiversity and resource depletion (e.g. clean water ... and fish stocks)” (Köhler et al 2019: 2; Sorrell 2017: 3; Kern and Rogge 2018: 102; Roberts et al. 2018: 304).

Transitions or rather “fundamental shifts [or “major transformations”] in socio-technical systems” address those environmental problems (Markard et al. 2012: 956; Sorrell 2017: 3). Transitions then “typically involve major changes in the technologies that form the core of the system, but they also – and necessarily – involve interlinked changes in many other parts of the system” (Sorrell 2017: 3). Transitions would then ultimately allow supplying the societal services without causing the problems. The focus is here placed on “sustainable modes of production” (Markard et al. 2012: 955). Limiting the use of the societal services would also address the environmental problems. The focus is here placed on final consumption, rather than on production (McMeekin and Southerton

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In this thesis, for the in-text references, I provide page numbers for all sources – including for quotations and for paraphrased material. For the paraphrased material, this allows more easily identifying the sections referred to in the sources. And, in the case of a combination of quotations and of paraphrased material in one sentence, I provide the in-text references for the quotations first.

2012: 346-348). And, the societal services or rather the needs are seen as evolving, rather than as static (Smith et al. 2010: 439; Hargreaves et al. 2013: 404).

I, consequently, define 'environmental sustainability transitions' as major transformations addressing the environmental problems associated with the supply and/or the use of societal services. More specific transitions can then be identified, as relating to specific societal services and specific environmental problems. The 'mobility decarbonisation transition' is such a more specific transition.

Regarding 'decarbonisation transitions', Roberts et al. (2018) have noted that "progress ... [in terms of decarbonisation] remains too slow" and that an "acceleration of the pace of change [or rather of decarbonisation transitions]" is required (304). Indeed, without an acceleration of the decarbonisation transitions, global temperatures are expected to rise to 2.6°C by 2100 (UNEP's "Emissions Gap Report 2021" – taking into account unconditional and conditional "Nationally Determined Contributions" (NDCs) under the "Paris Agreement") (UNEP 2021: XII). Such a rise in global temperatures would go beyond the global climate change agreement's, the Paris Agreement's, target of "limiting global warming to 2°C or even 1.5°C" (Geden 2016: 793).<sup>2</sup>

Transitions or rather the acceleration of transitions are impeded by 'socio-technical persistence' and 'socio-technical incumbency', ultimately leading to "long-term stability ... and path-dependencies" (Stirling 2019: 2; Turnheim and Sovacool 2020: 181). Stirling (2019) defines socio-technical incumbency-constituting dynamics as "dynamics through which a particular [transition] pathway ... is reproduced by – and reinforcing of – associated power gradients" or rather "asymmetrically structuring agency" (2 and 4). Socio-technical incumbency-constituting dynamics in this case arise from the agency of actors, while socio-technical persistence-constituting dynamics operate without such agency (Stirling 2019: 2).

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<sup>2</sup>

Though it is important to note that "decisions [on the temperature targets] were not about choosing between discrete sets of appropriate actions", and that global "climate policy has been much more about intentions than results" (Geden 2016: 794).

Socio-technical persistence and incumbency then form ‘regimes’. The constituting dynamics here align – though there might be exceptions to this (Stirling 2019: 9-10). Scholars studying transitions<sup>3</sup> have defined such regimes in two different ways, either focusing on socio-technical incumbency only or focusing on both socio-technical persistence and incumbency.<sup>4</sup> Transition scholars have also identified phenomena associated with the regime – the ‘levels’ of ‘niches’ and the ‘landscape’ (Stirling 2019: 10), with respectively lower and higher degrees of stability of these levels compared to the regime.<sup>5</sup> In addition, Stirling (2019) has in this vein identified “deeper” and shallower incumbency (13). Moreover, Schot and Kanger (2017) have differentiated between transitions and “deep transitions” – the latter being a “series of connected and sustained fundamental transformations [or transitions] of a wide range of socio-technical systems in a similar direction” (1045 and 1055). Deeper transitions, in this case, involve major changes in not only regimes but also in the landscape.

For decarbonisation transitions, the key issue of concern is then how these can be accelerated to an extent that would still allow achieving the Paris Agreement’s 1.5°C target, and that despite the relevant socio-technical persistence and incumbency.

Transition scholars have suggested that an acceleration of transitions – despite socio-technical persistence and incumbency – could only be realised by states. Only states potentially have the

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i.e. ‘transition studies’ scholars. These are hereafter referred to as ‘transition scholars’.

<sup>4</sup> Some scholars differentiate between regimes and socio-technical systems – “regime as a rule set” (Markard & Truffer 2008: 605). Regimes in this case only encompass “intangible” elements, i.e. “underlying deep structures ... such as engineering beliefs, heuristics, rules of thumb, routines, standardized ways of doing things, policy paradigms, visions, promises, social expectations and norms”, and systems only encompass “tangible” elements, i.e. “measurable elements ... such as artefacts, market shares, infrastructure, regulations, consumption patterns, public opinion” (Markard and Truffer 2008: 604-605; Geels 2011: 31). Other scholars equate regimes to socio-technical systems – “regime as a system” (Markard & Truffer 2008: 605). Regimes are in this case considered to encompass both tangible and intangible elements (Markard and Truffer 2008: 604-605; Sorrell 2017: 24).

<sup>5</sup> The “levels” in socio-technical systems are differentiated in terms of “degrees of stability” (“multi-level perspective”, MLP) (Smith et al. 2010: 440-441; Geels 2011: 26-29 and 37; Markard and Truffer 2008: 604-607; Sorrell 2017: 5). The levels show increasing degrees of stability from “niches”, to the “regime”, and to the “landscape” (Geels & Schot 2007: 402; Geels 2011: 26).

“range and depth of powers that ... will be required if ... rapid transitions are to be achieved” (Johnstone and Newell 2018: 72). And, the question is, then, whether states will actually “deliberately accelerate” the decarbonisation transitions (Roberts et al. 2018: 305).

Transition scholars have, therefore, increasingly focused on the state in their research (Johnstone and Newell 2018: 72).

Transition scholars have considered the state as context – as context in which actors operate (“institutional account”, with state as “secondary aspect”) (Johnstone and Newell 2018: 73 and 74). With, for example, “political lobbying of the state” (Johnstone and Newell 2018: 75). The interactions of actors – within the state as context – are in this case associated with shallower incumbency, with the regime (ibid.).

Moreover, transition scholars have considered the state as an actor – as an actor that operates through policy instruments for transitions (Johnstone and Newell 2018: 75). In this case, the context is rather the “differing aspects and forms of the state apparatus and institutions” or rather the “qualities of democracy” – with “general governance institutions, political discourse and representational processes and practices” (Johnstone and Newell 2018: 75; Johnstone and Stirling 2020: 21). The state as an actor – operating through policy instruments for transitions – is in this case rather associated with the acceleration of transitions despite incumbency. And, the state as context – within which the state acts in this manner – is associated with deeper incumbency, with the ‘regime context’ or rather the landscape (Johnstone and Stirling 2020: 2 and 21; Andrews-Speed 2016: 223 and 221-222).

The state or rather public authorities have thus been associated with transition acceleration despite incumbency, as well as with shallow and deep incumbency. That raises the **overall research question** to what extent public authorities deliberately accelerate a given decarbonisation transition in a specific setting?

Transition scholars have, consequently, noted that studying the deliberate acceleration of transitions requires: addressing the deliberate transition acceleration by public authorities through policy instruments for transitions, as well as addressing shallower and deeper incumbency associated with public authorities, i.e. addressing aspects of both the regime and the landscape associated with public authorities (Johnstone and Stirling 2020: 21; Johnstone et al. 2017: 157).

Only addressing some of those aspects then poses the risk of some incumbencies “remain[ing] unquestioned” (Johnston et al. 2017: 157). It poses the risk of “incumbency ... warp[ing] the very

processes through which incumbency is interrogated and understood” (Stirling 2019: 15; Johnstone et al. 2017: 157). Studies that address all of those aspects are, therefore, the way forward.

Studies on decarbonisation transitions that address all the deliberate acceleration aspects are, therefore, needed. Should some of those aspects not be addressed in such studies, there would be a risk of those transitions not being accelerated to the extent that would still allow achieving the Paris Agreement’s 1.5°C target

Existing research has, however, only to a very limited extent addressed the different aspects together. Notably, Johnstone et al. (2017) – in a study of UK energy policy between 2010 and 2015 – addressed policy instruments (for transitions) (150-155), “narrative[s] of policy” or rather shallower incumbency (150 and 155-156), as well as the “UK polity as a whole” or rather deeper incumbency (156-157). That study is outlined in more detail hereinafter.

Existing research has – then, rather – mostly addressed the individual aspects separately. That research is outlined hereinafter.

The thesis addresses the overall research question to what extent public authorities deliberately accelerate a given transition in a specific setting? It , in this case, deals with the deliberate transition acceleration by public authorities through policy instruments for transitions, as well as deals with shallower and deeper incumbency associated with public authorities – aiming to address the research gap identified above.

The thesis, then, addresses the overall research question with regard to the deliberate acceleration of the mobility decarbonisation transition in the European Union (EU) setting.

I focus on the mobility decarbonisation transition at the EU level, as this transition poses the greatest (remaining) challenge in terms of decarbonisation for the EU. In fact, “transport is the only ... sector in which [the EU’s] GHG [greenhouse gases] emissions have increased”, with such emissions in 2018 being 29 % above 1990 levels (transport GHG emissions, “excluding maritime shipping”) (EEA 2020).

Moreover, the EU is the pertinent setting when considering the deliberate acceleration of the mobility decarbonisation in Europe – or at least this the case for the European countries that are Member States (MSs) of the EU. The EU treaties provide for the transfer of some of the MSs’ powers

to the EU, including with regard to mobility decarbonisation.<sup>6</sup> Furthermore, the EU is a ‘unique’ setting. The ongoing debate on the EU’s “democratic deficit” in ‘EU studies’ inter alia reflects this ‘uniqueness’ of the EU as a setting (Schmidt 2015 - 1; Kratochvíl and Sychra 2019: 170-173).

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With regard to mobility decarbonisation, there is ‘shared competence’ – the powers between the EU and MSs are shared. This is set out in the EU treaties (EU 2016 - 1). Shared competence means that “Member States [MSs] can exercise competence only to the extent that the Union [EU] has not exercised, or has decided to cease to exercise, its competence within an ... area” (Craig and de Búrca 2020: 118) [EU 2016 - 1: Article 2(2)]. And, shared competence applies to various areas relevant for mobility decarbonisation – including “transport”, “environment” (includes climate change) and “energy”, as well as “research, [and] technological development” and “territorial cohesion” [EU 2016 - 1: Articles 4(2) and 4(3)]. Though for “research, technological development”, MSs exceptionally in any case retain their power – “the exercise of that [the EU’s] competence shall not result in Member States [MSs] being prevented from exercising theirs” [EU 2016 - 1: Article 4(3)]. And, as regards ‘environment’, “environmental protection requirements must be integrated into ... the Union’s [EU’s] policies” (EU 2016 - 1: Article 11).

The EU – then – acts within the remit of this ‘shared competence’ regarding mobility decarbonisation, deciding whether to actually “use” its ‘competence’ (Craig and de Búrca 2020: 118). This – in turn – is determined by the “principles” of “subsidiarity and proportionality”, also set out in the EU treaties [ibid.; EU 2016 - 2: Articles 5(3) and 5(4)].

## 1.2. Deliberate acceleration through policy instrument mixes for transitions

Transition scholars have considered policy instruments and policy instrument mixes – through which public authorities could deliberately accelerate transitions.

The policy instruments considered include “creative” instruments (for innovation) and “destructive” instruments (for “exnovation”) – both addressing the supply of societal services (Kivimaa and Kern 2016: 207; David 2017: 138). Other transition scholars have considered instruments that address the use of societal services or rather the final consumption (McMeekin and Southerton 2012: 349). That research is outlined hereinafter.

Transition scholars have, then, argued that policy “instrument mixes”<sup>7</sup> – instrument mixes encompassing both ‘creative’ and ‘destructive’ policy instruments – are needed for the deliberate acceleration of transitions (Kivimaa and Kern 2016: 214; Rogge et al. 2017: 2; David 2017: 139). Such instrument mixes are considered desirable as creative and destructive instruments target the various obstacles to transitions (Schmidt and Sewerin 2019: 2-3). They target different levels of socio-technical systems (Rogge and Johnstone 2017: 128). In other words, the different instruments show varying foci in addressing socio-technical persistence and incumbency. With creative instruments addressing persistence and incumbency indirectly and at the level of niches, and destructive instruments addressing persistence and incumbency directly and at the level of the regime.

That precautionary argument for instrument mixes put forward by transition scholars mirrors the above-mentioned argument for addressing different aspects regarding the deliberate acceleration of transitions by public authorities. In this case, only addressing some of those aspects poses the risk of some incumbencies “remain[ing] unquestioned” (Johnstone et al. 2017: 157).

It is also important to note here that when putting forward the precautionary argument for instrument mixes, transition scholars have not referred to instruments for addressing the use of societal services or rather the final consumption – though this would be in line with that

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It is important to note that I here define ‘instrument mix’ as a mix of different types of policy instruments. This definition is narrower than Rogge and Reichardt’s (2016: 1628-1629) definition of instrument mix, which also includes the “design features” of the instruments. This definition is also much narrower than their definition of “policy mix” that encompasses the instrument mix as well as the “policy strategy” (ibid.).

It has been argued that only considering the types of policy instruments is “necessarily quite crude” as the “specific design of individual instruments is important for their effectiveness” (Kern et al. 2019: 10). I – here – recognise that limitation of only considering the policy instruments types .

precautionary argument. Such instruments show yet another focus in addressing socio-technical persistence and incumbency. And, such instruments address persistence and incumbency directly and at the level of the landscape.

Moreover, Schmidt and Sewerin (2019) have “define[ed] policy mix balance by the dispersion of policy instruments across different instrument types” (3).

I, consequently, define ‘policy instrument mixes for transitions’ as instrument mixes that **(1)** encompass ‘traditional’ destructive policy instruments, as well as ‘novel’ creative instruments and ‘novel’ instruments addressing the use of societal services or rather the final consumption, as well as that **(2)** are balanced across those instrument types. The differentiation between traditional and novel instruments is, in this case, based on the past development of transition studies – as outlined hereinafter.

There has, then, been an “instrumental” call for the adoption of such instrument mixes (Stirling 2011: 86). Yet, such an instrumental call for instrument mixes for transitions is “undermining [or overlooking] the ... politics around conflicting knowledges, contending interests and contested normativities” (ibid.). Considering those politics would mean addressing the shallower and deeper incumbency associated with public authorities – as impeding the deliberate acceleration of transitions by public authorities.

### 1.3. Shallower and deeper incumbency impeding deliberate acceleration

Transition research has considered the “politics of ... transitions” or rather the “politics surrounding ... [the] deliberate acceleration” of transitions (Köhler et al. 2019: 7; Roberts et al. 2018: 305). That research, importantly, addresses shallower and deeper incumbency associated with public authorities – as impeding the deliberate acceleration of transitions by public authorities.

Some transition scholars have considered the “formalised democratic processes” or rather “policy processes”, and how the “politics [associated with these] ... shape policy outputs” (Avelino et al. 2016: 5; Köhler et al. 2019: 6 and 7). In this case, “transitions are inherently political processes, in the sense that different individuals and groups will disagree about desirable directions [and the pace] of transitions, [as well as] about ways to steer such ...” transitions (Köhler et al. 2019: 6; Roberts et al. 2018: 305). This perspective focuses on “transition governance” or rather “how to intervene in ... [transition] dynamics”, on “governance on the outside” or rather governance from the outside (Avelino and Grin 2017: 16; Avelino et al. 2016: 5; Smith and Stirling 2007: 352).

Regarding transition governance, transition scholars have, then, “cross-fertilized” or rather integrated transition studies and policy studies, drawing specifically on “policy process theories” (Kern and Rogge 2018: 102; Köhler et al. 2019: 6). This allows the “consideration of policy processes in addition to the content of policies”, and addressing how their “politics ... shape policy outputs” (ibid.). That research is outlined hereinafter.

The transition governance perspective, therefore, addresses shallower incumbency associated with public authorities, i.e. aspects of the regime associated with public authorities.

Other transition scholars have considered the “‘micro-politics’ of transition processes” (Avelino et al. 2016: 5; Köhler et al. 2019: 7). Micro-politics are in this case “material”, as well as “dispersed” and “situated” (Avelino et al. 2016: 2-5). This perspective focuses on “transition dynamics” as such, on “governance on the inside” (Avelino and Grin 2017: 16; Avelino et al. 2016: 5; Smith and Stirling 2007: 352).

Regarding transition dynamics, transition scholars have, then, inter alia focused on how “economic paradigms are reproduced ... [and] novelties are captured”, as well as on how “participation procedures take shape ... and actor roles are framed” (Avelino et al. 2016: 4-6). Moreover, transition scholars have considered the corresponding “emergent structures” – i.e. “the main political institutions, cultures and arenas of contemporary polities” or rather “general governance

institutions, political discourse and representational processes and practices” (Stirling 2019: 2; Johnstone et al. 2017: 157; Johnstone and Stirling 2020: 21). In addition, transition scholars have developed the transition management framework – “a policy-oriented ... prescriptive [context-focused] framework” for “shap[ing] transitions” (Köhler et al. 2019: 5; Loorbach 2010). That research is outlined hereinafter.

The transition dynamics perspective, therefore, addresses deeper incumbency associated with public authorities, i.e. aspects of the landscape associated with public authorities. It – thus – ultimately considers the context in which the above-mentioned policy processes occur.

The “crucial challenge” faced when studying the politics of transitions is then to navigate the two perspectives – the transition governance perspective and the transition dynamics perspective – and “moving beyond fragmented interventions” (Avelino et al. 2016: 5). Studies that adopt both perspectives are, then, the way forward.

Such a call for adopting the transition governance perspective and the transition dynamics perspective, mirrors the above-mentioned call – the above-mentioned call for addressing the deliberate transition acceleration by public authorities through policy instrument mixes for transitions, as well as addressing shallower and deeper incumbency associated with public authorities. In this case, only addressing some of those aspects poses the risk of some incumbencies “remain[ing] unquestioned” (Johnston et al. 2017: 157).

The thesis addresses the above core question – to what extent public authorities deliberately accelerate a given transition in a specific setting – by addressing the politics of transitions. It, in this case, adopts both the transition governance perspective and the transition dynamics perspective.

The thesis, then, addresses the core question with regard to the deliberate acceleration of the mobility decarbonisation transition in the EU setting – by addressing the politics of the deliberate acceleration of the mobility decarbonisation transition in the EU setting, in the context of a particular EU policy-making process. Specifically, I explore the making of the European Commission’s “2011 Transport White Paper” (COM(2011) 144), through a particular EU policy-making process involving the Commission (Commission 2011 - 1).

The 2011 Transport White Paper set out the EU’s “comprehensive [policy] strategy” regarding mobility for the period between 2011 and 2020, identifying all the mobility policies to be adopted in that period (Commission 2011 - 2; DG MOVE 2011 - 1). Though the designs of the individual

policies were subsequently still subject to other, specific EU policy-making processes (“ordinary legislative procedure” – involving the Commission, as well as the Council or rather MSs and the European Parliament) (EU 2016 - 2: Article 289 and Article 294; EP 2017: 11-25). Exploring the making of the White Paper allows studying EU mobility policy in the last decade or rather the 2010s in a comprehensive – yet also circumscribed – manner. Indeed, the ‘EU Transport White Papers’ – published roughly every ten years since 1992 – have previously been analysed to get an understanding of the development of EU mobility policy with regard to “sustainable mobility” (Dyrhaug 2013). Besides, Gudmundsson et al. (2016) noted that the EU Transport White Papers “are perhaps the largest scale attempt to provide a guiding framework for sustainable transportation [or sustainable mobility] that exists” (226).

#### **1.4. EU mobility policy and EU Transport White Papers**

As stressed above, this thesis explores the deliberate acceleration of the mobility decarbonisation transition in the EU setting. Specifically it explores the making of the Commission's 2011 Transport White Paper, through a particular EU policy-making process involving the Commission (Commission 2011 - 1). The Transport White Papers – in this case, as also stressed above – constitute the core element of EU mobility policy.

Historically (1983 to 1992), EU mobility policy or rather EU 'Common Transport Policy' (CTP) merely consisted of "for one mode after another, measures liberalizing access to both international and cabotage traffic between and within the member states [MSs]" (Stevens 2004: 60).

The first "CTP ten year policy planning and strategy document" or rather "Transport White Paper" of 1992, then, showed a shift – it "incorporates both the goals of the ... Single Market ... and the ... commitments to environmental protection" (Dyrhaug 2013: 136; Commission 1992). Transport White Papers have been published roughly every ten years since 1992 – in 2001, in 2011, and at the end of 2020 (Commission 2001 - 1; Commission 2011 - 1; Commission 2020 - 1). The White Papers have, in this case, continued to "focus ... on market opening in the individual transport modes ... so that overall the transport sectors are able to facilitate the demand generated by both the Single Market and by transport deregulation" (Dyrhaug 2013: 135; Stevens 2004: 61). At the same time, "environmental objectives have been increasingly incorporated" (Dyrhaug 2013: 135).

Specifically, as regards the environment including as regards climate change, the 1992 Transport White Paper emphasised "the need for overall coordination of the transport system, making alternatives to car and road haulage viable (mainly aimed at railways), optimizing transport modes and infrastructure, and developing new technologies to improve efficient use of vehicles" (Dyrhaug 2013: 140). And, the 2001 Transport White Paper emphasised "the need to reduce oil dependency, tackle air pollution ... and target investment in the infrastructure projects of the TEN-Ts", as well as "shift the modal balance away from road transport and towards rail, inland waterways and sea transport" (Dyrhaug 2013: 141). Dyrhaug (2013) notes that – therefore, as regards the environment including as regards climate change – the Transport White Papers (1992 and 2001) broadly emphasised efficiency, and that the 2001 Transport White Paper also emphasised "decoupling the economic growth from transport growth through rebalancing the

market share between the main transport modes in favour of more environmentally acceptable railways” (146).

Those policy priorities identified in the Transport White Papers (1992 and 2001) reflect the existing scope of EU mobility policy or rather the existing EU competence scope with regard mobility. In this case, as stressed above, the EU treaties provide for the transfer of some of the MSs’ powers to the EU in the area of mobility.

The Commission, could then – during the making of the 2011 Transport White Paper – maintain the EU competence scope with regard to mobility, including with regard to mobility decarbonisation. It could also expand the relevant EU competence scope, or reduce it, to different degrees (Craig and de Búrca 2020: 118) – as long as this occurs within the remit of the shared competence defined by the EU treaties, and as long as the principles set out in the EU treaties are respected (subsidiarity and proportionality).

### 1.5. Studying shallower and deeper incumbency together

The thesis addresses the overall research question to what public authorities deliberately accelerate a given decarbonisation transition in a specific setting? It does so by, as stressed above, addressing the politics of transitions, and adopting both the transition governance perspective and the transition dynamics perspective. This, importantly, raises the question of what approach could be followed for doing so?

I here propose to take transition governance research as basis, and to then also consider transition dynamics research. That approach builds on transition governance research, in particular the integration of transition studies and policy process theories. In addition, that approach allows taking into account the recent pertinent developments in policy process theories research – regarding the broadening of the scope of those theories, to also address context.

A key challenge in the integration of transition studies and policy studies, is to “justify ... [the] choice [of a specific policy process theory or of another policy studies theory] vis a vis alternatives” (Kern and Rogge 2018: 103).

Such theory choices can be made in relation to the research foci – as relevant for a specific research project or the “question at hand” (Kern and Rogge 2018: 112; Köhler et al. 2019: 7). Relevant considerations here stem from policy studies (**first theory choice approach**). Such theory choices can also be made based on the “applicability [of the policy process theory, or of the another policy studies theory] in the field of transitions”, based on the “most promising aspects [of the policy process theory, or of the other policy studies theory] from [a] transition studies perspective” (Kern and Rogge 2018: 103 and 111). Relevant considerations here stem from transition studies (**second theory choice approach**).

The first theory choice approach (theory choice with considerations stemming from policy studies), on the one hand, a priori does not entail addressing incumbency associated with public authorities. The second theory choice approach (theory choice with considerations stemming from transition studies), on the other hand, entails addressing shallower and possibly also deeper incumbency associated with public authorities, i.e. adopting a transition governance perspective and possibly also a transition dynamics perspective.

As this thesis aims at adopting both a transition governance perspective and a transition dynamics perspective, it – as much as possible – follows the second theory choice approach, with theory choice considerations stemming from transition studies.

The theory alternatives subject to such theory choices, then, range from single policy process theories to theoretical frameworks with theory parts of policy process theories or of other (policy studies) theories.

A single policy process theory can be applied to a transition case study (**first theory alternative**). Transition scholars have, for example, applied the policy process theory “Advocacy Coalition Framework” (ACF) to transition case studies (Markard et al. 2016; Haukkala 2018).<sup>8</sup> Applying a policy process theory, in this case, refers to the testing of hypotheses relating to the specific conceptual emphases of that theory (Jenkins-Smith et al. 2014).<sup>9</sup> In addition, a theoretical framework can be applied to a transition case study – a theoretical framework consisting of theory parts of a policy process theory, as well as theory parts of other (policy studies) theories. Transition scholars have applied theoretical frameworks with theory parts of a policy process theory, as well as theory parts of another policy studies theory, including another policy process theory (Hess 2019; Kern 2012 – for example) (**second theory alternative**). Moreover, transition scholars have applied theoretical frameworks with theory parts of a policy process theory, as well as theory parts from transition studies and its founding disciplines or related disciplines (Geels and Penna 2015; Penna and Geels 2012: 1000 – for example) (**third theory alternative**).

Choosing the former two theory alternatives, on the one hand, a priori does not entail addressing incumbency associated with public authorities. Choosing the latter theory alternative (third theory alternative), on the other hand, entails addressing shallower and possibly also deeper incumbency associated with public authorities, i.e. adopting a transition governance perspective and possibly also a transition dynamics perspective. Yet, it is also important to note that choosing the former two theory alternatives could ultimately also allow addressing shallower and possibly also deeper incumbency associated with public authorities (i.e. adopting a transition governance perspective and possibly also a transition dynamics perspective), provided that the above-mentioned second theory choice approach is followed (theory choice with considerations stemming from transition studies).

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The ACF has, in this case, been one of the policy process theories that has been drawn on most by transition scholars (Kern and Rogge 2018: 111).

<sup>9</sup>

I here refer to the ACF.

For this thesis, as mentioned above, the second theory choice approach (theory choice with considerations stemming from transition studies) is followed, in combination with choosing the second theory alternative (theoretical framework consisting of theory parts of a policy process theory, as well as theory parts of another policy studies theory). As this thesis adopts both a transition governance perspective and transition dynamics perspective, it could be argued that choosing the third theory alternative would have been more appropriate. Yet, the second theory alternative was rather chosen, as that choice, as stressed above, allows taking into account the recent pertinent developments in policy process theories research – regarding the broadening of the scope of those theories, to also address context.

This thesis, then, applies a theoretical framework – a theoretical framework consisting of theory parts of a policy process theory (specifically the ‘Narrative Policy Framework’, NPF), as well as theory parts from other policy studies theories (specifically ‘discursive institutionalism’, DI, with the ‘policy work theory’) – to a transition case study . The theory choice is based on considerations stemming from transition studies and from policy studies. My theory choice is explained here.

The policy process theory NPF builds on and complements the policy process theory ACF (McBeth 2014: XIV-XV; Jones and McBeth 2010: 338-339). The ACF has been one of the policy process theories that has been drawn on most by transition scholars (Kern and Rogge 2018: 111). The “most promising aspect” of the ACF for transition studies are “advocacy coalitions”. With “the ACF ... help[ing] us better analyse how ... regimes form” (Kern and Rogge 2018: 111 and 105).

The ACF understands policy processes as “driven by actors promoting their beliefs”, with policies ultimately being the “translations of belief systems” (Cairney 2012: 200; Jenkins-Smith et al. 2014: 192). Actors promote their beliefs together with other actors sharing their beliefs, in advocacy coalitions (Cairney 2012: 200 and 204). More specifically, actors in advocacy coalitions “shar[e] ... policy core beliefs” (Jenkins-Smith et al. 2014: 195). These policy core beliefs are abstractly defined as “fundamental policy positions” or as “value priorities” (Cairney 2012: 205; Jenkins-Smith et al. 2014: 191). These policy core beliefs are concretely (“empirically”) defined as “overall assessments of the seriousness of the problem, its basic causes, and preferred solutions for addressing it” (Jenkins-Smith et al. 2014: 191). The NPF, then, builds on and complements the ACF (McBeth 2014: XIV-XV; Jones and McBeth 2010: 338-339). The NPF complements the ACF by studying the “form and content of policy narratives”, so as to “uncover ... policy beliefs” or rather so as to “reveal ... policy beliefs” (McBeth et al. 2014: 228; Jones and McBeth 2010: 338-339). In other words, the NPF

complements the ACF by identifying an “operational measure of policy beliefs through narrative elements” (McBeth et al. 2014: 242). The NPF then seeks to “explain ... how policy narratives influence policy outcomes” (Jones and McBeth 2010: 345; Pierce et al. 2014: 36).

By choosing the NPF, I – therefore – choose a policy process theory, the NPF, that complements the policy process theory that has been drawn on most by transition scholars, the ACF. Relevant theory choice considerations here stem from transition studies (advocacy coalitions as most promising aspect of the ACF for transition studies), and stem from policy studies (NPF complements ACF in terms of operationalising policy beliefs). With this theory choice I, importantly, address shallower incumbency associated with public authorities.

Coalitions, as for the ACF, remain a most promising aspect of the NPF for transition studies. An additional most promising aspect of the NPF for transition studies are policy narratives, as outlined hereinafter.

Policy narratives encompass “elements” (narrative elements) – including “problem”, “policy solution” and “evidence”, as well as different “characters” (Shanahan et al. 2013: 459; Jones et al. 2014: 7). Policy narratives also encompass “strategies” (narrative strategies) – defined as the “tactical ... use of [the] narrative elements to manipulate or otherwise control” the policy process, by “expand[ing] or contain[ing] a coalition” (Jones et al. 2014: 9; Shanahan et al. 2013: 458).

The NPF, then, allows to analyse conflicts over the direction and the pace of a transition, and how to steer the transition (Köhler et al. 2019: 6; Roberts et al. 2018: 305). Transition scholars have considered different aspects of such transition conflicts – as briefly outlined here, and in more detail hereinafter.

Transition scholars have considered problems as an aspect of such transition conflicts (**first aspect**) – with transitions being major transformations addressing environmental problems associated with the supply of societal services and/or the use of societal services, as stressed above. Transition scholars have, in addition, considered policy instruments and instrument mixes as another aspect of such transition conflicts (**second aspect**). As stressed above, instrument mixes for transitions can be defined as instrument mixes that **(1)** encompass ‘traditional’ destructive policy instruments, as well as ‘novel’ creative instruments and ‘novel’ instruments addressing the use of societal services or rather the final consumption, and that **(2)** are balanced across those instrument types. Transition scholars have, moreover, considered evidence as another aspect of such transition conflicts (**third aspect**). Some transition scholars have identified different “analytical approaches” to studying transitions, to studying ‘transition pathways’ (Turnheim et al. 2015; 240; Geels et al. 2016 - 1). Those approaches address various “analytical challenges” in different ways (Turnheim et al. 2015: 240-

242 and 245). And, transition pathways are defined as sequences of changes regarding the dynamics constituting the various levels of socio-technical systems (Geels et al. 2016 - 2: 898 and 900; Geels and Schot 2007: 405-406 and 414). Transition scholars have, finally, considered strategies as another aspect of such transition conflicts (**fourth aspect**). In this regard, transition scholars have identified “patterns of political narratives”, again in relation to one of the transition pathways (Smith and Raven 2012: 1033). A most promising aspect of the NPF for transition studies are, thus, policy narratives (with narrative elements and narrative strategies) – allowing to analyse transition conflicts, with its different aspects.

By choosing the NPF, I therefore choose a policy process theory that shows an additional most promising aspect for transition studies (relative to the ACF). Relevant theory choice considerations here stem from transition studies (policy narratives as additional most promising aspect of the NPF for transition studies). With this theory choice I – importantly, again – address shallower incumbency associated with public authorities. Moreover, I with this theory choice address the deliberate acceleration of transitions by public authorities through policy instrument mixes for transitions.

NPF studies have, moreover, mostly not addressed context, and the NPF is undertheorized as regards context.

The NPF seeks to “explain ... how policy narratives influence policy outcomes” (Jones and McBeth 2010: 345; Pierce et al. 2014: 36). Policy narrative influence policy outcomes within a context, within a “setting” – defined as “e.g., legal constraints; cultural norms; political, social, and economic contexts; information; public opinion”, or just as institutions (McBeth et al. 2014: 237-238 and 239). This context influences the policy narratives (McBeth et al. 2014: 237-238; Pierce et al. 2014: 32-33). Some NPF scholars have used policy narratives as independent variable, and policy outcomes as dependent variable – thus not addressing context (Pierce et al. 2014: 32-33 and 36). Other NPF scholars have used context or rather institutions as independent variable, as well as both policy narratives and policy outcomes as dependent variables – thus actually addressing context (ibid.).<sup>10</sup>

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As regards the former approach (policy narratives as independent variable), also referred to as the “meso” level of analysis, “the researcher ... studies policy narratives in terms of their deployment by ... coalitions” (McBeth et al. 2014: 230). The core NPF hypothesis at the meso level is the “policy narrative persuasion” hypothesis – “variation in policy narrative elements helps explain policy learning, policy change and policy outcomes” (Jones et al. 2014: 17; McBeth et al. 2014: 244). As regards the latter approach (institutions as independent variable), the research question is “do institutions

The former approach (policy narratives as independent variable) has been predominantly employed in NPF studies, while the use of the latter approach (institutions as independent variable) in NPF studies remains an exception (Pierce et al. 2014: 36). The latter approach has, notably, been used by Radaelli et al. (2013) in their study of EU “Impact Assessments” (IAs). And, indeed, there has been a call for “test[ing] NPF hypotheses in different policy contexts (e.g., international, across substantive policy areas)”, a call for addressing context or rather institutions (i.e. call for the second approach) (McBeth et al. 2014: 256).

A challenge associated with the use of the second approach (institutions as independent variable) is that context is undertheorized in the NPF. Radaelli et al. (2013) (NPF study using second approach) have, notably, addressed this gap, by drawing on DI (503). DI differentiates between “context” and “interactive processes” (Schmidt 2015 - 2: 183-185 and 179-183). In this case, context encompasses “formal institutions” determining “who talks to whom ... where and when”, as well as “ideational rules or rationality” and “logic of communication” (or “informal rules”) (Schmidt 2015 - 2: 183-184; Schmidt 2014: 190). And, interactive process includes actors “think[ing] outside the institutions in which they continue to act, to talk about such institutions in a critical way, to communicate and deliberate about them, to persuade themselves as well as others to change their minds about their institutions, and then to take action to change them” (Schmidt 2010 - 2: 16; Schmidt 2015 - 2: 177).<sup>11</sup> This chimes with NPF scholars noting, as regards setting, that this is “often taken for granted”, although “at times ... they also become the focal point of the policy narrative” (McBeth et al. 2014: 228).

I here, therefore, also refer to ‘policy work theory’ to address the undertheorisation of the NPF as regards context. Referring to policy work theory also allows considering ‘political epistemologies’, as well as allows addressing both the context and the interactive processes regarding this, as outlined hereinafter. Policy work theory in this case addresses the “various accounts that policy workers give of their own practice and the accounts that outside observers (i.e., academic researchers) might give” (Colebatch et al. 2010: 22-23). “Policy work accounts”, the core concept of policy work theory – then – “frame .. the policy process in a specific way” (Colebatch 2010: 34). The “authoritative choice” account understands the policy process as identifying the “optimal

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influence what narratives ... [coalitions] utilize?” (Pierce et al. 2014: 32). The corresponding hypothesis is institutions influence the narratives utilised by coalitions.

<sup>11</sup>

DI, in this regard, refers to “foreground discursive abilities” (Schmidt 2010 - 2: 16; Schmidt 2015 - 2: 177).

course of action” or rather solution (Colebatch 2010: 35). The “structured interaction” account understands the policy process as the “generation of an outcome [or solution] considered acceptable” (Colebatch 2010: 36). And, the “social construction” account understands the policy process as developing “shared understandings” or rather problems (Colebatch 2010: 36-37).

By using the second NPF studies approach (institutions as independent variable) as well as then choosing DI and policy work theory, I complement the NPF. Relevant considerations here stem from policy studies (DI and policy work theory jointly complement NPF in terms of context).

Policy work theory, moreover, shows a most promising aspect for transition studies – ‘policy work accounts’.

The policy work theory – with policy work accounts – crucially allows to analyse the micro-politics of transition processes and the corresponding emergent structures – as stressed above. As regards emergent structures, it also allows to consider the prescriptive context-focused transition management framework.

By choosing DI with policy work theory – in addition to the NPF – I therefore choose theories that show additional most promising aspect for transition studies (relative to the NPF). Relevant theory choice considerations here stem from transition studies (policy work accounts as most promising aspect of the policy work theory for transition studies). With this theory choice I, importantly, address deeper incumbency associated with public authorities.

The thesis, then, applies the theoretical framework – resulting from my theory choice outlined here, as well as consisting of theory parts of the policy process theory NPF and theory parts from other policy studies theories (DI and policy work theory) – to a transition case study, to the making of the Commission’s 2011 Transport White Paper (Commission 2011 - 1). In doing so, the thesis addresses deliberate acceleration of the mobility decarbonisation transition by the Commission through policy instrument mixes for transitions. In addition, the thesis addresses shallower and deeper incumbency associated with the Commission.

The thesis, more specifically, explores transition policy narratives in the making of the 2011 Transport White Paper, as deployed by actors and/or coalitions. It considers how policy narratives influence the policy outcome (the White Paper). This thesis, moreover, considers how the context shapes the policy narratives deployed by actors and/or coalitions – the context in terms of formal process (EU policy-making involving the Commission), as well as in terms of the policy workers’

practices or rather in terms of the Commission's practices (EU policy-making in general, and the making of the White Paper specifically).

## 1.6. Research questions, research design and structure of the thesis

As stressed above, the thesis addresses the **overall research question** to what extent public authorities deliberately accelerate a given transition in a specific setting? Concretely, the thesis – as also stressed above – addresses the overall research question to what extent did the Commission deliberately accelerate the mobility decarbonisation transition – specifically the urban people mobility decarbonisation transition – during the making of the Commission’s 2011 Transport White Paper (Commission 2011 - 1)?

This thesis – then, and based on the above-mentioned theoretical framework – asks the following three more specific **research questions**.

- To what extent did the policy outcome show a policy instrument mix for transitions? Concretely, to what extent did the Commission’s 2011 Transport White Paper show an instrument mix for the urban people mobility decarbonisation transition? (**first research question**)
- To what extent – and how – did the transition policy narratives deployed by actors and/or coalitions during policy-making influence that policy outcome? Concretely, to what extent – and how – did the urban people mobility decarbonisation transition policy narratives deployed by actors and/or coalitions during the making of the 2011 Transport White Paper influence that policy outcome? (**second research question**)
- To what extent – and how – did the policy-making context shape those transition policy narratives deployed by actors and/or coalitions? Concretely, to what extent – and how – did the formal EU policy-making process involving the Commission and the Commission’s practices (in general, and specifically regarding the making of the 2011 Transport White Paper) shape those transition policy narratives deployed by actors and/or coalitions? (**third research question**)

Importantly, the first research question addresses the possible transition acceleration by the Commission through policy instrument mixes for transitions. The second and third research questions address the possible shallower and deeper incumbency associated with the Commission respectively.

The thesis addresses those three research questions by employing the research design briefly outlined here, and in more detail hereinafter. The thesis is, in this case, another NPF study. I – in this NPF case study – also draw on DI with policy work theory to address context.

NPF studies are “guided by either a logic of descriptive inference ... or by causal inference” – with “in the former, NPF research ... describ[ing] ... narrative phenomena, while in the latter the NPF study ... explain[ing] ... the relationship between variables” (Shanahan et al. 2014: 254).

For this thesis, I make ‘causal inference’ – with institutions as independent variable and policy outcome as dependent variable, as well as the deployment of policy narratives as ‘causal mechanism’ acting between the independent and the dependent variable. ‘Causal mechanisms’ are here defined as “entities that undertake activities” (Beach and Pedersen 2013: 29). I also consider time as independent variable – as independent variable underlying the independent variable of institutions. In other words, I consider variation in the independent variable of institutions, by considering possible variation in this over time. In this case, causal inference or rather “causal process tracing”, “invokes, necessarily, time as an independent variable” (Kay and Baker 2015: 10). As regards the research questions, the first research question, then, addresses the dependent variable (policy outcome), the second research question addresses the causal mechanism (deployment of policy narratives) and the dependent variable (policy outcome), and the third research question addresses independent variable (context) and the causal mechanism (deployment of policy narratives) .

I, in this NPF case study, also draw on DI with policy work theory to address context. As stressed above, DI differentiates between context – with formal institutions and informal rules – as well as interactive processes. And, policy work theory identifies policy work accounts, allowing to consider ‘political epistemologies’, as well to address both the context and the interactive processes regarding this.

For this thesis, I first explore the formal EU policy-making process involving the Commission. I then explore EU policy-making practices, the Commission’s practices – in relation to the policy work accounts. I also explore the Commission’s specific practices for the making of the 2011 Transport White Paper – again in relation to the policy work accounts. I finally explore discussions regarding the making of the 2011 Transport White Paper – again in relation to policy work accounts. I, ultimately, identify different ‘policy work instances’ throughout the making of the 2011 Transport

White Paper – based on the formal EU policy-making process and the Commission’s specific practices, as well as taking into account the discussions regarding these.

As regards the research questions, the third research question addresses the context, including the formal EU policy-making process involving the Commission and the Commission’s practices (in general, and specifically regarding the making of the 2011 Transport White Paper).

In addition, Shanahan et al. (2018) have noted that NPF studies “examine policy narratives over the known length of the policy debate” (340). They have also noted that policy debates typically last eight to ten years (ibid.). They have, however, also noted that these policy debates can also be shorter (ibid.).

The policy debate over the 2011 Transport White Paper was launched by the Commission in February 2009 with the organisation of focus groups (DG TREN 2009 - 1), and closed with the publication of the White Paper on 28 March 2011. This is only a time span of two years, but nevertheless presents a distinct policy debate.

As regards the research questions, both the second and the third research questions refer to the making of the 2011 Transport White Paper. That making of the 2011 Transport White Paper is – here, thus – understood as the policy debate regarding the 2011 Transport White Paper between February 2009 and March 2011.

Moreover, NPF studies identify policy narratives by using “content analysis” of relevant documents (Pierce et al. 2014: 37; Shanahan et al. 2018: 339). As “content analysis is very labor intensive”, sampling might be required (Shanahan et al. 2018: 339).

For this thesis, I – as stressed above – consider the deployment of mobility decarbonisation transition policy narratives by actors and/or coalitions during the making of the 2011 Transport White Paper. For doing so, I collected the documents produced during the making of the 2011 Transport White Paper. This included documents that are publicly available, and documents that could be requested from the Commission – under the EU regulation regarding public access to documents (Regulation (EC) No 1049/2001) (EU 2001). The documents to be analysed were – then – restricted, to take into account the only limited resources available for analysis. I only included documents relevant for the **urban people** mobility decarbonisation transition.

The focus on the urban people mobility decarbonisation transition, could be justified in relation to the contribution of urban people mobility to GHG emissions. Indeed, the GHG emissions associated with the use of cars for **personal mobility** (urban and non-urban) constituted the greatest contribution to overall transport GHG emissions in the EU in 2017 (44%) (transport GHG emissions,

“excluding maritime shipping”) (EEA 2019 - 1). Though the focus on **urban** people mobility can ultimately not be justified in this manner – as “EU-wide data on the relative importance and characteristics of transport within cities [urban], between cities and outside cities [non-urban] ... [is] not available” (EEA 2019 - 2: 15). I – then, rather – justify the focus on **urban people mobility** in a different way: Policy instruments for addressing the use of the societal service of mobility have predominantly been studied in relation to urban people mobility.<sup>12</sup> As this thesis considers such policy instruments for addressing the use of societal services or rather final consumption, within instrument mixes for transitions, a focus on urban people mobility suggests itself.

As regards the research questions, both the second and the third research questions refer to policy narratives. And, the second research question specifically refers to urban people mobility decarbonisation transition policy narratives.

The thesis – addressing the three research questions and employing the research design briefly outlined here – is then structured as follow.

I, initially, outline the theoretical framework. I also further review the existing research relating to the research gaps, and in doing so further develop the theoretical framework (in **Chapter 2**). In this case, I consider the relevant transition studies literatures, as well as the research relating to the policy studies theories that constitute the theoretical framework (NPF, as well as DI with policy work theory) .

Subsequently, I outline the research methods used in this thesis (**Chapter 3**). I outline the methods used for identifying the possible instrument mixes for transitions in the policy outcome, as well as the methods used for identifying the transition policy narratives deployed by actors and/or coalitions. I also outline the methods used for identifying the ‘policy work instances’. I, ultimately, outline the methods used for assessing the extent of the influence of those narratives deployed by actors and/or coalitions on the policy outcome, and for analysing the extent to which the policy-making context shapes those narratives

I, then, present the results of the analysis of the policy-making context. I, first, outline the formal process of EU policy-making involving the Commission. I also outline the EU policy-making practices, the Commission’s practices (in **Chapter 4**). I, secondly, outline the Commission’s specific

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I review the relevant literature hereinafter.

practices in the making of the 2011 Transport White Paper. In doing so, I ultimately identify ‘policy work instances’ in the making of the 2011 Transport White Paper (in **Chapter 5**).

Subsequently, I assess the extent to which the policy outcome (the 2011 Transport White Paper) shows an instrument mix for transitions (answering the **first research question**). I, then, present the results of the analysis of the urban people mobility transition policy narratives deployed by actors and/or coalitions during the making of the 2011 Transport White Paper. Moreover, I analyse these results in relation to the policy outcome (the 2011 Transport White Paper) (answering the **second research question**). I also analyse these results in relation to the policy-making context (answering the **third research question**). I, ultimately, assess to what extent did the Commission deliberately accelerate the mobility decarbonisation transition – specifically the urban people mobility decarbonisation transition – during the making of the 2011 Transport White Paper (answering the **overall research question**) (in **Chapter 6**).

Thereafter, I identify the research contributions made by the thesis through its findings . In this case I, first, present my contributions to transition studies. I, secondly, present my contributions to the literatures on EU mobility policy – in EU studies and in ‘transport studies’. Thirdly and finally, I set out critical reflections (in **Chapter 7**).

## Chapter 2 – Literature review

### 2.1. Relevant literatures

As stressed above, the thesis aims to address two research gaps: Firstly, the thesis aims to respond to the call to deal with the different aspects regarding the deliberate acceleration of transitions by public authorities together – i.e. to deal with the deliberate transition acceleration by public authorities through policy instrument mixes for transitions, as well as to deal with shallower and deeper incumbency associated with public authorities. Secondly, the thesis aims to respond to the call to adopt both the transition governance perspective and the transition dynamics perspective – with this research gap mirroring the other research gap. As also stressed above, existing research has only to a very limited extent addressed those different deliberate transition acceleration aspects together. Existing research has, rather, mostly addressed the individual aspects separately.

This chapter, then, further reviews the existing research relating to the research gaps. Such a review allows further specifying the research gaps that the thesis aims to address. Such review, in addition, allows further developing the thesis' theoretical framework – as developed above for addressing the research gaps – and further developing the thesis' research design. For this purpose, I also consider in more detail some of the key concepts of the policy studies theories that constitute the theoretical framework.

The first figure below (**Figure 2.1.**) summarises the elements constituting that theoretical framework, as developed above. The second figure below (**Figure 2.2.**) summarises the relevant theory choice considerations stemming from transition studies, and the associated most promising aspects of the theoretical framework for transition studies, as also identified above.

I, initially, further review the literatures that have addressed the individual aspects separately. Those literatures have already been introduced above.

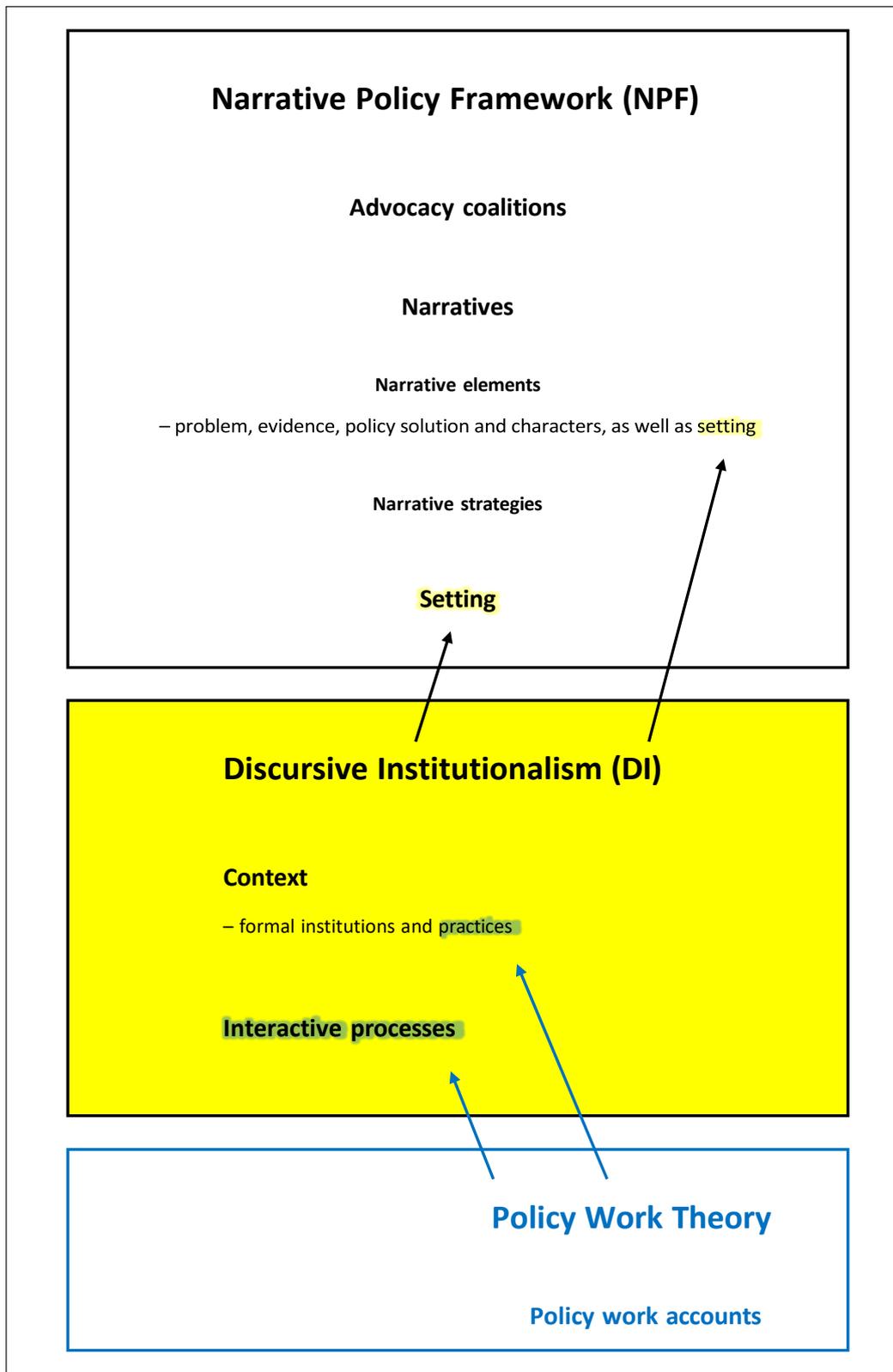
I address policy instrument mixes for transitions and the underlying analytical approaches (in **Section 2.2.**).

In addition, I address shallower incumbency associated with public authorities. I address the integration of transition studies and policy studies (i.e. policy process theories and other policy studies theories) (in **Section 2.3.**). In doing so, I also consider in more detail the key concepts of the

ACF and the NPF – with the NPF constituting the policy process theory chosen as basis of the thesis' theoretical framework (in **Section 2.4.**). Moreover, I address strategies in transition conflicts (in **Section 2.5.**).

Furthermore, I address deeper incumbency associated with public authorities. I address the structures emerging from the micro-politics of transition processes (in **Section 2.6.**). In doing so, I also consider in more detail the key concepts of DI and policy work theory – complementing the NPF in the thesis' theoretical framework (in **Section 2.7.**). Moreover, I address the prescriptive context-focused transition management framework (in **Section 2.8.**).

I, finally, consider research that has to a very limited extent addressed the different aspects regarding the deliberate acceleration of transitions by public authorities together – i.e. research that has responded to the call to address those different aspects together (in **Section 2.9.**). That research was briefly introduced above.



**Figure 2.1. Summary of the elements constituting the theoretical framework.** The NPF – as the basis of the theoretical framework – is depicted in top rectangle. And, the NPF is complemented by

DI and policy work theory – as depicted in middle and bottom rectangles. The complementing is, in this case, depicted using arrows.

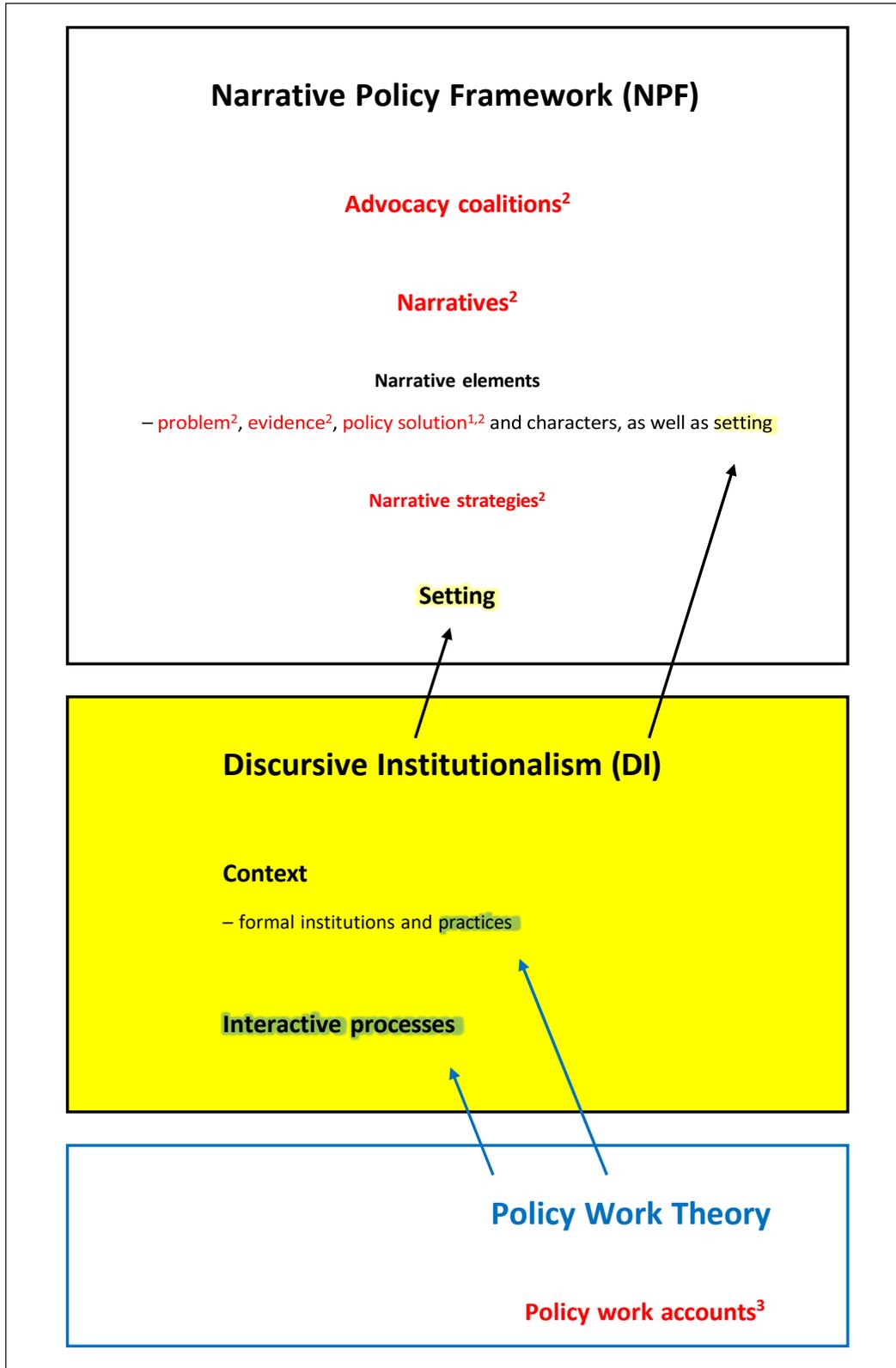


Figure 2.2. Summary of theory choice considerations stemming from transition studies, and the associated most promising aspects of the theoretical framework for transition studies. With most promising aspects of the theoretical framework for transition studies highlighted in red. Moreover,

I point out what is addressed with the different theory choices: Footnote **(1)** refers to addressing the transition acceleration by public authorities through policy instruments for transitions, as well as footnotes **(2)** and **(3)** respectively refer to addressing shallower and deeper incumbency associated with public authorities.

## 2.2. Policy instrument mixes for transitions and underlying analytical approaches

I have above, based on existing research, defined policy instrument mixes for transitions as instrument mixes that **(1)** encompass ‘traditional’ destructive policy instruments, as well as ‘novel’ creative instruments and ‘novel’ instruments addressing the use of societal services or rather the final consumption, and that **(2)** are balanced across those instrument types.

I, here, further define those different instrument types in relation to underlying ‘analytical approaches’. I, then, define traditional destructive instruments as ‘environmental economics’-based instruments. In addition, I define novel creative instruments as ‘innovation studies’-based instruments. Moreover, I define instruments addressing the use of societal services or rather the final consumption as ‘social practice theory’-based instruments. The differentiation between traditional and novel instruments is, in this case, based on the past development of transition studies.

Ultimately, I provide an overview of the empirical studies that have addressed instrument mixes for transitions. In doing so, I consider the empirical focus of those studies, and the approach followed for assessing instrument mixes for transitions by those studies – i.e. the approach followed to assess the extent to which such instrument mixes are encompassing and balanced.

Transition scholars have identified different “analytical approaches” to studying transitions, to studying transition pathways (Turnheim et al. 2015: 240; Geels et al. 2016 - 1). I have above defined ‘transition pathways’ as sequences of changes regarding the dynamics constituting the various levels of socio-technical systems. The analytical approaches, then, address various “analytical challenges” in different ways (Turnheim et al. 2015: 240-242 and 245). These analytical challenges include “scale and temporality”, “treatment of complexity”, “innovation and inertia”, and “normative goals” (ibid.). The scholars identify three approaches to studying transitions (or ‘transition approaches’) – “quantitative systems modelling”, “socio-technical analysis”, as well as “initiative-based learning” (Turnheim et al. 2015: 242-246; Geels et al. 2016 - 1: 579-580). The transition approaches are to “address [the] knowledge needs of ... policymakers” (Geels et al. 2016 - 1: 576).

Quantitative systems modelling provides “simple and coherent policy advice”, as well as allows “calculat[ing] ... [the] effects of policy options” or policy instruments (Turnheim et al. 2015: 244; Geels et al. 2016 - 1: 580). It focuses on “economic and regulatory instruments”, in particular on “price-based instruments” (Geels et al. 2016 - 1: 578; Turnheim et al. 2015: 245). And, in the case

of socio-technical analysis “policy advice [rather] focuses on general strategies (patterns)” or “strategic ‘lessons’ and patterns” (Turnheim et al. 2015: 244 and 245; Geels et al. 2016 - 1: 580). Moreover, in the case of initiative-based learning, “policy advice is rooted in practice”, with an “emphasis on internal governance of processes and resources” (Turnheim et al. 2015: 244 and 245; Geels et al. 2016 - 1: 580).

Transition scholars have – thus, on the one hand – identified a transition approach that directly addresses policy instruments (quantitative systems modelling). They have, on the other hand, identified approaches that indirectly address instruments (socio-technical analysis and initiative-based learning).

As regards one of the transition approaches that indirectly address instruments, socio-technical analysis, the strategic policy advice resulting from that approach includes the precautionary argument for instrument mixes for transitions. In this case, as stressed above, such instrument mixes are considered desirable as different types of instruments target the various obstacles to transitions, the different levels of socio-technical systems. In other words, the different instruments show varying foci in addressing socio-technical persistence and incumbency. With creative instruments addressing persistence and incumbency indirectly and at the level of niches, and destructive instruments addressing persistence and incumbency directly and at the level of the regime.

As regards transition approaches that directly address instruments, Turnheim et al. (2015) and Geels et al. (2016 - 1) have identified quantitative systems modelling as one such approach. I, here, seek to identify possible further such transition approaches directly addressing instruments. I do so by exploring the literature on instruments for transitions, and then detecting the underlying disciplines.

Scholars exploring instruments for transitions have consistently referred to “innovation studies” (Kivimaa and Kern 2016: 205; David 2017: 138; Rogge et al. 2017: 2-3). Those scholars have also mentioned “environmental economics”, but not consistently (Rogge et al. 2017: 2-3).<sup>13</sup> The

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In this case, ‘environmental economics’ is rooted in ‘neoclassical economics’. And, ‘innovation studies’ presents a shift away from neoclassical economics to ‘evolutionary economics’ (Martin 2012: 1229-1230). Neoclassical economics and evolutionary economics differ in the way in which they consider innovation. Neoclassical economics on the one hand only considers such innovation across the economy. Evolutionary economics, on the other hand, focuses on firms. In doing so,

transition approach of quantitative systems modelling – focussing, as stressed above, on economic and regulatory instruments, in particular on price-based instruments – can in this case be equated with the discipline of environmental economics. In addition, the other transition approach that directly addresses instruments is, thus, innovation studies.

The underlying disciplines identified in the literature on instruments for transitions thus include some, but not all, of the core founding disciplines of transition studies – they include “evolutionary economics” and innovation studies, but not “Science and Technology Studies” (STS) (Smith et al. 2010: 436; Geels 2011: 26; Pel et al. 2016: 454; Sorrell 2017: 4). The founding discipline of “neo-institutional theory” is also not identified as underlying discipline in the literature on instruments for transitions – though this discipline is actually not consistently identified as such a founding discipline (Geels 2011: 26; Pel et al. 2016: 454).

As noted here, STS is the founding discipline of transition studies not identified as underlying discipline in the literature on instruments for transitions. I, then, identify “social practice theory” (SPT) as a relevant part of STS that has explored policy instruments.<sup>14</sup>

Shove et al. (2012) have noted that SPT understands policy-making “as a more process-based ‘succession of short and fairly rapid steps’ involving sequences of ‘trial-and-error’ learning or ‘serial adjustment’, anchored in and never detached from the details and specificities of the practices in question” (145). Such an indirect consideration of instruments for transitions mirrors the above transition approach indirectly addressing instruments, initiative-based learning. At the same time, Shove et al. (2012) have identified instruments in relation to SPT – these “interventions have effect (some intended, some not) within and as part of the ongoing dynamics of practice”, and these “may increase the chances that more rather than less sustainable ... [practices] persist and thrive” (145 and 146).

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evolutionary economists acknowledge differences between firms in terms of their ability to innovate, rather than only considering “representative agents” (Mazzucato 2015: 41-43; Van den Bergh et al. 2007: 9-11 and 17-19).

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SPT “makes selective use of ideas developed within ... STS”, in terms of the “role of things and technologies” or “materials and resources” (Shove et al. 2012: 9 and 8). Though SPT does not go as far as STS in this regard. It does not consider “artefacts have the capacity ‘to construct, literally and not metaphorically, social order’”, but rather considers that “artefacts, materials and technologies ... form ‘arrangements’ that are co-produced with practices but which are nonetheless distinct” (Shove et al. 2012: 9-10).

Environmental economics and innovation studies address sustainable modes of production, rather than addressing final consumption (McMeekin and Southerton 2012: 346-348). Though innovation studies does address final consumption indirectly – through defining “consumers ... as users of the key technologies ..., and ... their responses to the technologies ... taken to represent processes of final consumption”, through adoption (McMeekin and Southerton 2012: 347). SPT, then, directly addresses final consumption – “by turning ... attention towards everyday practices, ... show[ing] how particular societal needs and functions are either maintained or evolve and change through the routine performance of social practices” (Hargreaves et al. 2013: 404; McMeekin and Southerton 2012: 349).

Transition scholars have – in this case, importantly – considered instruments that address the use of societal services or rather final consumption in general, as well as SPT specifically – though not within the literature on instruments for transitions (McMeekin and Southerton 2012: 349).

The differing perspective on instruments partially explains why SPT has so far not been drawn on by the literature on instruments for transitions. Moreover, SPT’s focus on needs also partially explains why SPT has so far not been drawn on by the literature on instruments for transitions (Hargreaves et al. 2013: 404).

I have thus identified three transition approaches directly addressing instruments for transitions – environmental economics, innovation studies and SPT. I outline those approaches, and the associated instruments, in more detail here.

**Environmental economics** identifies various “externalities”. An externality is “an economically significant effect of an activity, the consequences of which are (at least in part) by a party or parties other than the party that controls the externality-producing activity” (Jaffe et al. 2005: 165). With regard to pollution, externalities include “environmental costs” (Jaffe et al. 2005: 165-166). These are “negative externalities” – with the market creating too much of these (Jaffe et al. 2005: 166). Moreover – with regard to technology and with regard to “innovation and diffusion” – externalities include “knowledge externalities”, as well as “adoption externalities” (Jaffe et al. 2005: 166-168). In the case of knowledge externalities, “a firm that invests in or implements a new technology typically creates benefits for others while incurring all the costs” (Jaffe et al. 2005: 166). And, in the case of adoption externalities, “producers” and “adopters” generate information through “learning-by-doing” and “learning-by using” (Jaffe et al. 2005: 166). Both knowledge externalities

and adoption externalities are “positive externalities” – with the market creating too little of these (Jaffe et al. 2005: 166-167). Environmental economists argue that “a single market failure is best addressed with one instrument, while multiple market failures require multiple instruments” (Fischer and Preonas 2010: 77; del Río 2014: 267).

Policy instruments targeting the negative externality of GHG emissions, and the associated environmental costs, aim to reduce these. Instruments addressing the environmental costs put a price on GHG emissions, and include “emissions taxes” and “cap-and-trade systems” (Jaffe et al. 2005: 169; Fischer and Preonas 2010: 56-57). Instruments addressing the positive externalities aim to increase knowledge and adoption. Instruments addressing the knowledge externalities include “performing the research in public institutions”, as well as “subsidizing research in the private sector” (Jaffe et al. 2005: 170). Instruments addressing the adoption externalities include “financial incentive mechanisms”, such as “policies that ... use market-based incentives and quantity-based mandates” or policies that are “price- or quantity-based” (Fischer and Preonas 2010: 57 and 59). Instruments addressing the adoption externalities also include “command and control regulations”, such as “standards” (Jaffe et al. 2005: 172). Such instruments also include targeted “subsidies” and “government purchases” (Jaffe et al. 2005: 171). It is important to note here that instruments addressing the negative externality are inherently “technology neutral”, while instruments addressing the positive externalities are not. For the latter it has been argued that the aim should nevertheless be to make these technology neutral (Jaffe et al. 2005: 171). Although Azar and Sandén (2011) argue that in practice policy instruments are always to a certain extent “technology specific” (136-137). The issue is, rather, how technology specific instruments are (Azar and Sandén 2011: 137).

Instruments addressing the negative externality of GHG emissions are more cost-effective for reducing emissions than instruments addressing the positive externalities (Fischer and Preonas 2010: 59). And, quantity-based instruments are less expensive than price-based instruments (Fischer and Preonas 2010: 61). This is the result of the former “promot[ing] ... the most commercially ready technologies” (Fischer and Preonas 2010: 86). A combination of instruments addressing the negative externality of GHG emissions with instruments addressing the positive externalities do not reduce emissions further (Fischer and Preonas 2010: 85). Such a combination only increases the cost of reaching emissions reduction targets (del Río 2014: 276). Although this might only be the case in the short-term, and not in the long-term. With instruments addressing the positive externalities ensuring that in the long-term technologies are available to cost-effectively reduce emissions (del Río 2014: 277).

**Innovation studies** identifies various “systemic problems” or “system weaknesses” in “Technological Innovation Systems” (TISs) (Wieczorek and Hekkert 2012: 78-81; Jacobsson and Bergek 2011: 45). The “structure” of TISs encompasses both “tangible” and “intangible” elements (Wieczorek and Hekkert 2012: 76-77). It includes actors – actors that have different “role[s] in the economic activity” (ibid.). It includes institutions – both “hard” and “soft”. Moreover, it encompasses interactions – both in networks and between individuals. And, it includes infrastructure – “physical”, “knowledge” and “financial” infrastructure (ibid.). In order to evaluate the “goodness” or “badness” of a particular structural element and of combinations of structural elements, innovation studies, then, considers “processes” or “functions” within TISs (Jacobsson and Bergek 2011: 46). These functions include “knowledge development and diffusion”, “entrepreneurial experimentation”, “influence on the direction of search”, “resource mobilization”, “market formation”, as well as “legitimation” (Jacobsson and Bergek 2011: 47; Wieczorek and Hekkert 2012: 77). ‘Knowledge development and diffusion’ is the “function ... at the heart of an innovation system” (Jacobsson and Bergek 2011: 47). Although ‘knowledge development and diffusion’ is “not enough”. Rather a TISs require actors that “explore and exploit new opportunities by conducting experiments” – the ‘entrepreneurial experimentation’ function (Jacobsson and Bergek 2011: 48). Such opportunities “rarely present themselves in a clear and transparent way” – the ‘influence on the direction of search’ function (Jacobsson and Bergek 2011: 49). Exploring and exploiting new opportunities also requires financial and human resources – the ‘resource mobilization’ function (Jacobsson and Bergek 2011: 50). Moreover, markets provide incentives for conducting entrepreneurial experiments – the ‘market formation’ function (ibid.). In addition, ‘resource mobilization’ and ‘market formation’ require legitimacy – the ‘legitimation’ function (Jacobsson and Bergek 2011: 51). The specific performance of a TIS in relation to these different functions can be related to the specific structure of a TIS – in a “functional-structural analysis” (Wieczorek and Hekkert 2012: 78). Specific functions are considered in relation to the different structural elements. This entails “looking at each of the structural elements in two ways” – in terms of their “presence”, as well as in terms of their “properties” (Wieczorek and Hekkert 2012: 79). This allows identifying different system weaknesses – including “actors’ problems”, “institutional problems”, “interaction problems”, as well as “infrastructural problems” (ibid.).

Policy instruments addressing the system weaknesses are inherently technology specific. This is the case as TISs – their structure, functions and systemic weaknesses – are identified in relation to specific technologies (Jacobsson and Bergek 2011: 42; Jacobsson et al. 2017: 16). As regards the instruments, scholars – initially – identify specific “systemic instrument goals” for specific systemic

weaknesses (Wieczorek and Hekkert 2012: 83). These include “stimulate and organise participation of actors”, “create space for actors’ capability development”, “stimulate occurrence of interactions”, “prevent too strong and too weak ties”, “secure presence of ... institutions”, “prevent too weak/stringent institutions”, “stimulate infrastructure”, and “ensure adequate quality infrastructure” (Wieczorek and Hekkert 2012: 85). Scholars, subsequently, identify relevant instruments for achieving these systemic instrument goals (Wieczorek and Hekkert 2012: 85).

**Figure 2.3.** provides an overview of the relevant instruments.

In selecting policy instruments the system weaknesses have to be considered, as well as the “mutual interactions” of the instruments have to be considered (Wieczorek and Hekkert 2012: 85- 86; Jacobsson et al. 2017: 16).

Goals of systemic instruments	Examples of individual instruments
Stimulate and organise participation of actors	Clusters; new forms of Public Private Partnerships, interactive stakeholder involvement techniques; public debates; scientific workshops; thematic meetings; transition arenas; venture capital; risk capital
Create space for actors' capability development	Articulation discourse; backcasting; foresights; road-mapping; brainstorming; education and training programmes; technology platforms; scenario development workshops; policy labs; pilot projects
Stimulate occurrence of interactions	Cooperative research programmes; consensus development conferences; cooperative grants and programmes; bridging instruments (centres of excellence, competence centres); collaboration and mobility schemes; policy evaluation procedures; debates facilitating decision-making; science shops; technology transfer
Prevent too strong and too weak ties	Timely procurement (strategic, public, R&D-friendly); demonstration centres; strategic niche management; political tools (awards and honours for innovation novelties); loans/guarantees/tax incentives for innovative projects or new technological applications; prizes; Constructive Technology Assessment; technology promotion programmes; debates, discourses, venture capital; risk capital
Secure presence of (hard and soft) institutions	Awareness building measures; information and education campaigns; public debates; lobbying, voluntary labels; voluntary agreements
Prevent too weak/stringent institutions	Regulations (public, private); limits; obligations; norms (product, user); agreements; patent laws; standards; taxes; rights; principles; non-compliance mechanisms

Stimulate physical, financial and knowledge infrastructure	Classical R&D grants, taxes, loans, schemes; funds (institutional, investment, guarantee, R&D), subsidies; public research labs
Ensure adequate quality of infrastructure	Foresights; trend studies; roadmaps; intelligent benchmarking; SWOT (strengths, weaknesses, opportunities and threats) analyses; sector and cluster studies; problem/needs/stakeholders/solution analyses; information systems (for programme management or project monitoring); evaluation practices and toolkits; user surveys; databases; consultancy services; tailor-made applications of group decision support systems; knowledge management techniques; Technology Assessments; knowledge transfer mechanisms; policy intelligence tools (policy monitoring and evaluation tools, systems analyses); scoreboards; trend charts

**Figure 2.3. Overview of innovation studies-based instruments.** Overview of the different systemic instrument goals and the corresponding instruments (Wieczorek and Hekkert 2012: 85 – quote).

**SPT** identifies different “elements” – and “links” between these – as comprising “practices” (Hargreaves et al. 2013: 405; Shove et al. 2012: 24). Elements include “‘images’ (meanings, symbols), ‘skills’ (know-how, forms of competence), and ‘materials’ (artefacts, technologies)” (Hargreaves et al. 2013: 405). Or, more simply, “materials, meanings, competences” (Shove et al. 2012: 120). Practices are “interdependent relations” or links between these elements (Shove et al. 2012: 24). These practices are “stabilised (or changed) through their repeated and more or less faithful performances by practitioners” – “practices-as-performances” (Hargreaves et al. 2013: 405). These repeated performances impact “practices-as-entities” – “idealised and abstract forms that are historically and collectively constructed” (ibid.). Practices develop over time – from “proto-practice”, to “practice”, to “ex-practice” (Hargreaves et al. 2013: 406; Shove et al. 2012: 25). Scholars also identify “relations between practices, resulting from the sharing of elements (Shove et al. 2012: 36). And, they identify “interconnected practice complexes or ‘systems of practices’” (Hargreaves et al. 2013: 406). The relations between practices can, in this case, be “collaborative” or “competitive” (Shove et al. 2012: 120). Consumption is – notably, here – “not itself a practice but is, rather a moment in almost every practice” (McMeekin and Southerton 2012: 350). And, practices are “intersecting and integrating between consumption and production” (McMeekin and Southerton 2012: 356).

SPT identifies different “routes” that “may increase the chances” for desirable practices to “persist and thrive” (Shove et al. 2012: 146). These routes include “a) the range of elements in circulation; b) the ways in which practices relate to each other; c) the careers and trajectories of practices and those who carry them; and d) the circuits of reproduction” (ibid.). Scholars, subsequently, identify different instruments in relation to the various routes. For ‘a’, relevant “meanings” are introduced (Shove et al. 2012: 147-151). For ‘d’, “configuring connections” entails “bringing existing actors together ... as part of a deliberate strategy to reconfigure the character and distribution of the elements of which ... [desirable] practices could be made, and in seeking to break the ties that hold other ... arrangements in place” (Shove et al. 2012: 161 and 160-162). For ‘b’, a specific practice in a competitive relation between practices is supported (Shove et al. 2012: 152-156). And for ‘c’, it is important to address the parallel development of various practices – various practices at different stages of development (Shove et al. 2012: 152-156).

I, then, define destructive instruments as environmental economics-based instruments, as well as creative instruments as innovation studies-based instruments and instruments addressing final consumption as social practice theory-based instruments. Those definitions are based on the above

definition of instrument mixes for transitions, as well as take into account the above transition approaches directly addressing instruments for transitions and the instruments associated with those transition approaches. And, those definitions – importantly, also – take into account Kivimaa and Kern’s (2016) empirical study of transition instrument mixes, differentiating between creative and destructive instruments and identifying specific such instruments (208-209).

Transition scholars have – in empirical studies – explored instrument mixes for transitions in different ways.

Kern et al. (2017) studied “energy efficiency policy mixes” in two countries. They differentiated between “economic instruments” (including “subsidy”, “taxation” and “research & development”), “regulatory instruments” and “soft instruments” (including “voluntary measures” and “information”) (Kern et al. 2017: 22). For assessing instrument mixes they then compared the number of instruments in each category and subcategory (ibid.).

Schmidt and Sewerin (2019) studied “energy policy mixes” in nine countries. They used the “International Energy Agency’s [IEA’s] categorization of instruments along nine different types ... education, financial, incentive, investment, R&D, regulation, tradable, voluntary, framework” (Schmidt and Sewerin 2019: 5). For assessing instrument mixes or “policy mixes’ instrument type balance”, they then calculated the “1-Simpson Index ... which was developed in ecology to estimate the concentration of populations across different species” for the different categories (Schmidt and Sewerin 2019: 2-3). They, importantly, also considered the “technology-specificity” of instruments – “distinguish[ing] between four tiers: (1) economy, (2) sector, (3) technology field, (4) technology” (Schmidt and Sewerin 2019: 6).

Lindberg et al. (2019) studied the “EU’s energy policy mix” (1). They differentiated instruments along “two dimensions that reflect the ... potential conflicts ... over different directions of the ongoing transformation” – “degree of sustainability” and “degree of disruption” (Lindberg et al. 2019: 3). More specifically, they differentiated between “ambitions for the use of renewable energy sources” and “degree of decentralization of the electricity system”, respectively (Lindberg et al. 2019: 5-6). For assessing instrument mixes or “pathway types”, they then mapped instruments along these dimensions (Lindberg et al. 2019: 6 and 9).

Kivimaa and Kern (2016) studied “‘low energy’ policy mixes” – including for “heating of buildings” and for “mobility” – in two countries (205 and 212-213). They differentiated between instruments tackling the “the creation of niche innovations including their development over time”, as well as “instruments tackling the destruction of incumbent regimes” – and for these identified specific

relevant instruments fulfilling different specific “functions” (Kivimaa and Kern 2016: 207-209 and 214). For assessing instrument mixes, they then compared the number of instruments in each category (creative **as well as** destructive – broad functions) and subcategory (specific functions) (ibid.). Kivimaa and Kern (2016) – in this case, importantly – noted that assigning instruments to the various functions was challenging – as instruments fulfil “dual functions” or multiple functions (214-215).

Transition scholars have, thus, differentiated instruments based on considerations stemming from transitions studies (Lindberg et al. 2019; Kivimaa and Kern 2016), or not (Kern et al. 2017; Schmidt and Sewerin 2019). As regards differentiating instruments based on considerations stemming from transition studies, Kivimaa and Kern (2016) highlighted the challenge associated with this due to instruments fulfilling multiple functions simultaneously. In addition, transition scholars have assessed instrument mixes by simply comparing the number of instruments in different categories and subcategories (Kern et al. 2017; Kivimaa and Kern 2016), or by assessing instrument mixes in a more complex way – calculation of quantitative indicator, and mapping (Schmidt and Sewerin 2019; Lindberg et al. 2019).

This thesis’ approach with regard instrument mixes for transitions, then, reflects at least some of that existing research. The thesis assesses instrument mixes for transitions in relation to the above-mentioned definition of such mixes, which is based on considerations stemming from transitions studies. Though it is important to note here, that the thesis also goes beyond existing research – in also considering instruments addressing final consumption.

Moreover, this thesis addresses the challenge associated with differentiating instruments. It does so by defining the different instrument types in relation to the underlying analytical approaches or rather transition approaches. Those transition approaches individually provide frameworks for differentiating between instruments – within a given instrument type, and based on the different functions fulfilled by the instruments. And, those transition approaches also collectively provide a framework for differentiating between instruments – across instrument types, and again based on the different functions fulfilled by the instruments.

The subsequent differentiation between ‘traditional’ and ‘novel’ instruments in this thesis is based on the past development of transition studies: The transition approach of innovation studies presents a shift away from quantitative systems modelling or rather environmental economics. And, the transition approach of social practice theory presents a shift away from both of the other transition approaches. I hence identify environmental economics-based instruments as traditional

instruments, as well as innovation studies-based and social practice theory-based instruments as novel instruments.

Finally – as outlined hereinafter – instrument mix balance is in the thesis assessed in a simple manner – again as based on at least some of the existing research.

### 2.3. Integration of transition studies and policy studies

As stressed above, transition scholars have for addressing shallow incumbency associated with public authorities, integrated transition studies with policy studies, drawing in particular on policy process theories. In addition, the ACF has been one of the policy process theories that has been drawn on most by transition scholars.

The basis of the thesis' theoretical framework is the policy process theory NPF, which complements the ACF. And, the NPF – in turn – is complemented by DI and policy work theory in the thesis' theoretical framework. I – therefore, here – provide an overview of transition case studies that have drawn on the policy process theories ACF and NPF, as well as on the policy studies theories DI and policy work theory. Choosing DI with policy work theory – in addition to the NPF – in this case also allows addressing deeper incumbency associated with public authorities.

In providing an overview of transition case studies that have drawn on the ACF and on the NPF, I consider the following: Transition case studies that have exclusively drawn on either the ACF or the NPF (first theory alternative, as outlined above). In addition, transition case studies that have applied a theoretical framework with theory parts of the ACF or the NPF (second theory alternative, as also outlined above). In addition, I provide an overview of transition case studies that have drawn on DI and policy work theory in those two ways.

Moreover, in providing an overview of those studies, I consider the empirical focus of those studies, and the definitions of core concepts of the policy process theories or rather the policy studies theories put forward by these – in particular of the core concepts of the policy process theories ACF and NPF, beliefs and advocacy coalitions as well as policy narratives. In addition, I identify the independent and dependent variables set by those studies. Moreover – for the second theory alternative (theoretical framework with theory parts of the relevant theories) – I also address the justification put forward for the application of a particular theoretical framework.

Firstly, transition scholars have applied the policy process theory ACF to transition case studies (Markard et al. 2016; Haukkala 2018). Markard et al. (2016) studied the energy decarbonisation transition by the Swiss national government (222-223). And, Haukkala (2018) also studied the energy decarbonisation transition but by the Finnish national government (148-149).

Markard et al. (2016) defined policy core beliefs as “basic positions ... e.g. with regard to the role of the state or the salience and understanding of the policy issue” (219). They then identified such

policy core beliefs from the ACF literature, including the “seriousness of the problem”, as well as “institutional aspects” with “market-state” and “centralized-decentralized” (225 and 235). In addition, they identified “sustainability dimensions”, including “ecological aspects”, “social justice” and “economic efficiency” (ibid.). Moreover, they defined “secondary beliefs” as “specific policy goals and instruments” (225). Haukkala also defined policy core beliefs as “basic positions” (2018). She then identified such policy core beliefs through a “detailed structured survey with open-ended question” and the categorisation of responses (148).

Markard et al. (2016), subsequently, defined advocacy coalitions as “ groups of policy actors that share similar belief systems and engage in a ‘non-trivial degree of coordination’: they ... coordinate actions to enhance the chance that their belief systems get translated into policy outputs and objectives” (219). They then clustered actors based on an “‘actor vs. belief’ matrix” and an “‘actor vs. actor’ matrix” (225). Haukkala (2018) defined advocacy coalitions as “actors that share similar belief systems and coordinate actions to translate their belief systems into a policy change” (147). She considered the beliefs of actors within the “green-transition coalition” – “which includes blue-green (labor-environmental) alliances, urban political constituencies that support green jobs, and the rising industries in a niche position (e.g. green-energy industries)” (148).

Ultimately, Markard et al. (2016) considered changes in coalitions over time, in relation to three successive energy policy proposals (224). In doing so, they considered “changes in the actor base”, as well as “changes in ... beliefs and coalitions” – including in the dominant coalition, “belief distances” within and between coalitions, as well as “boundary-spanning actors” or rather actors “comparatively close to the other coalition” (229). They, however, did not consider “what resources the different actors can mobilize and what influence the coalitions have on the final policy output” (232). Haukkala (2018) considered “differences among the coalition actors’ core beliefs” (152). She then also considered relevant coalition activities – including the establishment of a renewable energy association and an energy transition campaign – and their impact on policy (147 and 153). Markard et al. (2016), thus, defined beliefs a priori (in relation to the ACF literature and in relation to the broader literature addressing sustainability) and then considered beliefs empirically, while Haukkala (2018) only considered beliefs empirically. Markard et al. (2016) then identified coalitions empirically, while Haukkala (2018) defined a coalition a priori as supporting the transition and then considered this empirically. Moreover – in terms of variables – Markard et al. (2016) only considered beliefs and coalitions – though they did so over a period covering three successive policy debates – while Haukkala (2018) considered beliefs and coalitions as well as policy, as independent and dependent variables.

Secondly, transition scholars have applied the NPF to a transition case study (Lazarevic and Valve 2017). Lazarevic and Valve (2017) studied the “circular economy transition” by the EU (62 and 66). Lazarevic and Valve (2017) defined “four main narrative elements”, including “the setting that provides a context where problems are situated; the characters which are characterised as victims (those harmed by the problem), villains (those that cause the problem) and heroes (the ones that fix the problem); the moral of the story which includes the solutions that solve the problem; and the plot that links the problem setting, characters and solutions through causal relationships” (62). They then identified “four types of expectations [“for the European circular economy”] narrated into being”, based on the coding of the empirical data with regard to those narrative elements (63). The expectations, in this case, consisted of specific “problematizations” or rather specific problems and solutions (63-65).

Ultimately, Lazarevic and Valve (2017) analysed the expectations in relation to strategies – differentiating between a “radical stretching and transforming strategy” and a “fitting and conforming strategy” (66) – and associating these strategies with specific actors, including “intermediaries and NGOs” as well as “incumbent-firm alliances” (67). As outlined above, such strategies have been identified by transition scholars in relation to one of the transition pathways. They identified such expectations and strategies over a period of one year, between the withdrawal of one circular economy policy package and the tabling of a new such policy package (62). They finally noted that identifying such expectations in the end “provide[s] backdrop for the evaluation of the upcoming progress” (67).

Lazarevic and Valve (2017), thus, defined policy narratives as encompassing four narrative elements, but empirically only identified two such elements – problems and solutions. They, however, did not define or consider coalitions. Moreover – in terms of variables – they only considered policy narratives.

Thirdly, transition scholars have applied theoretical frameworks with theory parts of a policy process theory as well as theory parts from other theories in policy studies (including other policy process theories) to transition case studies (Hess 2019; Kern 2012 – for example).

Hess (2019) applied a theoretical framework that included theory parts of the policy process theory ACF, and theory parts from other policy studies theories – from “discourse coalition theory” (another policy process theory) and from “framing analysis” (39). And, he studied the energy decarbonisation transition in the state of California (U.S.), specifically “community-choice

aggregation (CCA)” (Hess 2019: 38). Kern (2012), applied a theoretical framework that included theory parts of the policy process theory “discourse coalitions approach”, and theory parts from another policy studies theory – from DI (93). And, he studied the energy decarbonisation transition in the UK, specifically the “UK Carbon Trust” (Kern 2012: 92).

Hess (2019), then, acknowledged the ACF’s “focus on competing coalitions”, as well as stressed the study’s “focus on ... the symbolic representation of positions [of coalitions] in policy conflicts” (39). The latter was then addressed by drawing on discourse coalition theory and framing analysis (ibid.). Hess (2019) defined the associated core concepts as “storyline or a ‘condensed statement summarizing complex narratives’ ... and a collective action frame, or a scheme of interpretation that can inspire and legitimize collective action and mobilization” (ibid.). He then considered two coalitions – “an incumbent coalition, associated with the utilities, and a challenger or ‘energy transition’ coalition ... associated with the CCA advocates” – and the frames used by these (41). Kern (2012) stressed that the discourse coalitions approach “is considered helpful in analysing the politics of governing transitions towards sustainability ... [as the] precise formulation of the problem, determining who is responsible and what a sustainable energy system... looks like, is contested” (91). He defined “storylines as a ‘generative sort of narrative that allows actors to draw upon various discursive categories to give meaning to specific physical or social phenomena”” (Kern 2012: 93). In addition, Kern (2012) noted that “discourses are to some extent constrained by existing institutions” (93). A combination of the discourse coalitions approach and DI then allows considering agency and context (ibid.). He defined context as “formal and informal rules”, and referred to “the interactive process of policy construction (the coordinative discourse) and communication (communicative discourse)” (Kern 2012: 93). He then considered “the storyline which was used by a coalition of actors to promote policy change” (Kern 2012: 95).

Ultimately, Hess (2019) considered changes in coalition composition and in the frames of coalitions, as well as the impact of the former and of the relation between the pro- and anti-CCA coalitions on the latter (40). He did so for a period of “institutionalisation of CCA”, and covered “five ... policy conflicts” (41). Kern (2012) considered “how the design and implementation of the policy initiative was shaped by the discursive politics” (95). In doing so, he considered “organisational rules and administrative practices...shaping the implementation of the storyline” (97).

Hess (2019), thus, justified the application of the particular theoretical framework by noting that studying storylines allows to identify the positions of coalitions. Kern (2012) justified the application of the particular theoretical framework by noting that the policy change coalition’s storyline is constrained by existing institutions. Regarding coalitions, both studies (Hess 2019 and Kern 2012) defined coalitions a priori, with coalitions either supporting or opposing policy change, and then

considered these empirically. Moreover – in terms of variables – Hess (2019) only considered coalitions and frames – though he did so over a period covering five policy debates. Kern (2012) considered institutions, discourses and policy, with institutions as independent variable and both discourse and policy as dependent variables.

Transition scholars have, thus, applied policy process theories to transition case studies in different ways.

Transition scholars have identified beliefs or narratives mostly only empirically. A notable exception is the study by Markard et al. (2016), which defined beliefs a priori drawing on the ACF literature and referring to the “three dimensions of sustainability”, and then considered the beliefs empirically (225). In addition, they have mostly defined coalitions a priori – with these either supporting or opposing policy change – and have then considered these empirically. Moreover, the transition scholars have mostly considered beliefs or narratives and coalitions as variables. A notable exception is the study by Haukkala (2018), which set beliefs and coalitions as independent variables, and set policy as dependent variable. And, Kern (2012) considered institutions, discourses and policy – with institutions as independent variable and both discourses and policy as dependent variables.

This thesis’ approach with regard to beliefs or narratives and with regard to coalitions, then, reflects at least some of that existing research.

The thesis also defines narratives and coalitions a priori and then considers these empirically. It does so by drawing on transition studies, differentiating between ‘traditional’ and ‘novel’ instruments (as set out above). It also differentiates between ‘traditional’ and ‘novel’ coalitions (as outlined in more detail hereinafter). In addition, the thesis considers institutions, policy narratives and policy – with institutions as independent variable and both policy narratives and policy as dependent variables. Notably, Kern’s (2012) study – which also considered institutions as independent variable, and discourses and policy as dependent variables – drew on DI to address context (complementing the policy process theory forming the basis of the theoretical framework, based on consideration stemming from policy studies). That approach adopted by Kern’s (2012) study is also adopted by this thesis.

## 2.4. Policy narratives and coalitions

In the above overview of relevant transition case studies, I have considered the definitions of the core concepts of the policy studies theories put forward by these – in particular the core concepts of the ACF and NPF, beliefs and advocacy coalitions as well as policy narratives. Those definitions were, however, only based on a limited review of the ACF and NPF literatures by the authors of those studies – with these limited reviews in particular not addressing divergences within those literatures. I here, therefore, provide a review of the ACF and NPF literatures in relation to those core concepts.

The NPF differentiates between “policy narrative form” or “narrative elements” on the one hand, as well as “policy narrative content” including “narrative strategies” on the other hand (Shanahan et al 2018: 335- 337; Jones et al. 2014: 5-9). Narrative strategies are defined as the “tactical ... use of [the] narrative elements to manipulate or otherwise control” the policy process, by “expand[ing] or contain[ing] a coalition” (Jones et al. 2014: 9; Shanahan et al. 2013: 458).

NPF scholars consider the policy narrative form (or narrative elements) to be “generalizable across space and time to different contexts” (McBeth et al. 2014: 228; Jones et al. 2014: 5). In other words, they consider the policy narrative form to reappear across different contexts. NPF scholars, however, do not consider the policy narrative content (including narrative strategies) to be generalizable. They rather consider policy narrative content to be “contextual” (Jones et al. 2014: 5; McBeth et al. 2014: 229). Though the NPF allows policy narrative content to “be systematically studied” across contexts, “looking for repeated patterns” (McBeth et al. 2014: 229; Shanahan et al. 2018: 336).

**Narrative elements** include “problem”, “policy solution” and “evidence”, as well as different “characters” (Shanahan et al. 2013: 459). The narrative element problem has also been referred to as “setting” (Jones et al. 2014: 6; McBeth et al. 2014: 228). And, the narrative element policy solution or rather solution has also been referred to as “moral of the story” or “moral” (Shanahan et al. 2013: 459; Jones et al. 2014: 7; McBeth et al. 2014: 228). The narrative element evidence has also been referred to as setting (Shanahan et al. 2013: 459), or it has actually not been identified as narrative element (Jones et al. 2014: 6-7; McBeth et al. 2014: 228).

Regarding the narrative element problem, this is – then – “situate[d] ... in a specific context” or “setting” (Jones et al. 2014: 6; McBeth et al. 2014: 228). The NPF defines setting as “e.g., legal constraints; cultural norms; political, social, and economic contexts; information; public opinion”, or just as institutions (McBeth et al. 2014: 237-238 and 239). Setting “is often taken for granted; at times, however, ... [it] also become[s] the focal point of the policy narrative” (McBeth et al. 2014: 228).

Regarding the narrative element evidence, Schlauffer (2018) has noted that this “may be embedded in a narrative in different ways” (94). NPF scholars have, in this case, “mainly associated” evidence with the narrative element problem or setting, as well as with the narrative element solution (Schlauffer 2018: 94-95).

Regarding the narrative element characters, characters were initially defined as “individual humans” or “anthropomorphized abstractions or broad categories” (Jones et al. 2014: 6). Some NPF scholars have argued that it does not matter whether the character can “literally take action”, but rather that actors and/or coalitions give characters agency, including “treat[ing] abstract principles or non-human characters as having agency” (Shanahan et al. 2018: 335). Other NPF scholars have highlighted the “challenges in identifying characters in practice when characters are defined as any noun” (Weible and Schlager 2014: 240). They have suggested for “the definition of characters ... [to be] restricted to actors with agency (people/organizations ...)” (Weible and Schlager 2014: 240; Shanahan et al. 2018: 335). In addition, the NPF defines three types of characters – “victim”, “villain” and “hero”. In this case, “victims ... are harmed, villains ... do the harm, and heroes ... provide or promise relief from the harm” (McBeth et al. 2014: 228; Shanahan et al. 2013: 459). Some NPF scholars have noted that the problem causes the harm (Jones et al. 2014: 6). Other NPF scholars have noted that “particular action or inaction” (or solution or rather absence of solution) causes the harm (Shanahan et al. 2018: 343). And, heroes are “those who take action with purpose to achieve or oppose a policy solution” or solution (ibid.).

The NPF literature has, subsequently, addressed the key question of what narrative elements “are necessary to constitute a policy narrative” (Shanahan et al. 2018: 336). Initially, NPF scholars noted that a policy narrative requires at least a character and a solution (Shanahan et al. 2013: 457; Jones et al. 2014: 7; McBeth et al. 2014: 229; Shanahan et al. 2018: 336). In practice, NPF scholars have, however, not necessarily adhered to this definition. Though scholars identified a solution in most NPF studies, scholars did not necessarily identify a character in such studies (Pierce et al. 2014: 30-32). And, Shanahan et al. (2013) identified an additional required element, noting that “policy narratives must [also] be populated by ... evidence in support of the solution” (458).

This thesis' approach with regard to narrative elements, then, reflects that existing research. It considers a minimum of two narrative elements – solution and any other element – as required for constituting a policy narrative. In other words, a 'combination' of two or more narrative elements – solution and any other element(s) – is required for constituting a policy narrative.

I also associate the narrative element evidence with the narrative element solution only. That takes into account that the thesis defines solutions or rather instrument types in relation to the underlying analytical approaches or rather transition approaches. And, it takes into account that the thesis consequently defines evidence as analytical approaches or rather transition approaches. I, moreover, define setting as a separate narrative element. That reflects that setting can be discussed, in the framework of policy narratives. Setting has been associated with different narrative elements – including problem and evidence. I associate the narrative element setting with evidence, and the related element solution – i.e. I associate the narrative element setting with the required transition elements. I, finally, define the narrative element characters as people or organisations only. This allows clearly identifying characters.

**Narrative strategies** are not a concept newly developed by NPF scholars, but “are [rather] based in existing theories” (Shanahan et al. 2018: 336-337). I here provide an overview of the narrative strategies that NPF scholars have referred to most.

NPF scholars have, **firstly**, identified “devil-angel shift” as opposing narrative strategies (Jones et al. 2014: 9). The narrative strategy ‘devil shift’ is “casting ... villains as the victors over the heroes”, and identifies a “high ratio of villains to heroes” – so as to “exaggerat[e] ... the power of an opponent” (Shanahan et al 2018: 337; McBeth et al. 2014: 242; Shanahan et al. 2013: 459). And, the narrative strategy ‘angel shift’ is “casting ... the hero as the winner”, and identifies a “higher ratio of heroes to villains” – so as to “emphasize ... ability and/or commitment to solving a problem” (ibid.). The narrative strategies devil shift and angel shift thus entail using the narrative element characters.

NPF scholars have, **secondly**, identified the “expansion and contraction of the scope of conflict” as opposing narrative strategies (Jones et al. 2014: 9). They have considered those narrative strategies in relation to “the distribution of costs and benefits among the characters” (McBeth et al. 2014: 241). The narrative strategy ‘expansion’ identifies “concentrated benefits and diffuse costs”, “costs to a broad spectrum of victims and benefits to the elite few, typically the villain” – so as to “expand the scope of conflict” (Shanahan et al. 2013: 459; Shanahan et al. 2018: 337; McBeth et al. 2014: 241). And, the narrative strategy “containment” (or ‘contraction’) identifies “diffused benefits and concentrated costs”, “benefits to a large population of victims and costs to the few, sometimes cast

as villains and sometimes cast as entities who can simply bear the cost” – so as to “contain an issue to a status quo audience” (ibid.). The narrative strategies expansion and containment thus entail using the narrative element characters, as well as using the other narrative elements – with specifically expansion and containment in relation to distribution of costs and benefits among the characters, **or** more broadly expansion and containment beyond the distribution of costs and benefits.

NPF scholars have, **thirdly**, identified ‘plot’. NPF scholars identify this as narrative element, not as a narrative strategy (Shanahan et al. 2013: 459; McBeth et al. 2014: 228; Jones et al. 2014: 6). At the same time, Shanahan et al. (2013) have defined plot as “story device linking” different narrative elements (characters, evidence and solution), and defined narrative strategies as “policy story” (459). And, Jones et al. (2014) have noted that the NPF “does not endorse a specific operationalization of plot” (6), as is the case for narrative strategies (narrative strategies not a concept newly developed by NPF scholars). This suggests that plot can actually also be considered as narrative strategy. NPF scholars have – then – identified such plots, in particular referring to Deborah Stone’s “story types” or “story lines” (Jones et al. 2014: 6; Shanahan et al. 2018: 336; Shanahan et al. 2013: 459). Jones et al. (2014) have referred to Stone’s “story of decline, stymied progress, and helplessness and control” (6). The former two stories are “stories of change”, and the latter two stories are “stories of power” (Stone 2012: 160-168). The “stymied progress story” – as story of change – is defined as “things got better”, but “interference” is now threatening this (Stone 2012: 161). And, the “story of decline” – as opposing story of change – is defined as “things ... got worse” with “a prediction of crisis”, and “something must be done” (Stone 2012: 160). Moreover, the “story of helplessness” – as story of power – is defined as the “situation is bad” and “out of our control”, “something we had to accept” (Stone 2012: 165-166). And the “story of control” – as opposing story of power – is defined as a shift to “in fact we *can* control things” (ibid. – emphasis in original). The former story is in this case “threatening”, while the latter story is “heartening” (Stone 2012: 166). NPF scholars have noted that plots “connect characters to one another and to the ... setting” (Jones et al. 2014: 6; Shanahan et al. 2018: 336), or that they link characters, evidence and solution (Shanahan et al. 2013: 459). The narrative strategies plots thus entail using the narrative element characters, as well as using the other narrative elements.

This thesis’ approach with regard to narrative strategies, then, reflects that existing research. It considers the narrative strategies that NPF scholars have referred to most. The thesis identifies combinations of narrative elements and then identifies possible strategies in relation to the combinations.

The NPF defines a **coalition** as actors that “shar[e] ... policy preferences” (McBeth et al. 2014: 237). This definition of coalition chimes with the ACF’s definition of advocacy coalition as actors that “shar[e] ... policy core beliefs” (Jenkins-Smith et al. 2014: 195). Those policy core beliefs are, in this case, concretely (“empirically”) defined as “overall assessments of the seriousness of the problem, its basic causes, and preferred solutions for addressing it” (Jenkins-Smith et al. 2014: 191). This definition of policy core beliefs chimes with the definition of policy narratives, which then suggests that actors in a coalition share a policy narrative (with narrative elements and with narrative strategies). The argument that the NPF complements the ACF by identifying an “operational measure of policy beliefs through narrative elements” (McBeth et al. 2014: 242 – emphasis added) also suggests this (i.e. that a coalition is actors sharing a policy narrative).

At the same time, NPF studies have defined a coalition as actors sharing the content of the narrative element solution only. In this case, NPF studies simply identify a coalition as actors supporting or opposing a specific solution (Shanahan et al. 2013: 462 and 464; Kear and Wells 2014: 165-166; Heikkila et al. 2014: 73 – for example).

NPF scholars have, then, explored ‘intercoalition’ differences in policy narratives or rather differences between coalitions as a whole. Those differences “reflect... the extent to which policy systems are contentious” or rather “the overall intractability of the policy context” (McBeth et al. 2014: 237 and 242-243; Shanahan et al. 2013: 461-462; Jones et al. 2014: 18). In addition, NPF scholars have explored “intracoalition cohesion and coordination” within coalitions – as “coalitions are a composite of multiple groups and individuals, the policy beliefs for each entity within the coalition can be assessed relative to the others to determine the extent to which there is policy belief coordination or cohesion among the coalition more generally” (McBeth et al. 2014: 242-243 and 237; Shanahan et al. 2013: 461-462; Jones et al. 2014: 18). In this case, a focus on the latter – i.e. on intracoalition cohesion and coordination – constitutes a “finer level of analysis” (Shanahan et al 2013: 461).

This thesis’ approach with regard to coalitions, then, again reflects existing research. It defines a coalition as actors sharing the content of the narrative element solution only. It then differentiates between coalitions of actors putting forward specific traditional solutions on the one hand (‘traditional coalitions’), and coalitions of actors putting forward at least one specific type of novel solution on the other hand (‘novel coalitions’). With the various coalitions as a whole showing differences in policy narratives (with narrative elements and with narrative strategies). And, with

the members of such coalitions showing intracoalition cohesion to variation in policy narratives (again with narrative elements and with narrative strategies). This thesis focuses on the broader intercoalition differences in such policy narratives or rather differences between the various coalitions as a whole. It – then, however – does not address the finer intracoalitional cohesion to variation in policy narratives between members of the same coalition.

## 2.5. Strategies in transition conflicts

I have above – based on existing research – identified the different aspects of transition conflicts that transition scholars have considered – including problems, policy instrument mixes, analytical approaches to studying transitions, as well as strategies. Above, I have in detail already addressed how transition scholars have considered policy instrument mixes for transitions and underlying analytical approaches or rather evidence.

I – therefore, here – address in detail how transition scholars have considered strategies in transition conflicts. For this purpose, I – first of all – consider how transition scholars have defined strategies. I, secondly, provide an overview of empirical transition studies that have addressed strategies.

As outlined above, transition scholars have identified patterns of political narratives or rather strategies in relation to one of the transition pathways.

Transition scholars have identified such patterns of narratives in relation to the “substitution pathway” (Smith and Raven 2012: 1033; Geels et al. 2016 - 2: 898). The substitution pathway is for technologies defined as “radical innovation(s) substituting existing technology”, and for actors as “new firms struggle against incumbent firms, leading to overthrow” (Geels et al. 2016 - 2: 898). In addition, for rules and institutions, Geels et al. (2016 - 2) differentiate between a “‘fit-and-conform’ substitution pathway” on the one hand, and a “‘stretch-and-transform’ substitution pathway” on the other hand (896). The former entails “limited institutional change, implying that niche-innovation needs to compete in existing selection environment”, and the latter entails the “creation of new rules and institutions to suit the niche-innovation” (Geels et al. 2016 - 2: 900).

Smith and Raven (2012) have, then, identified two opposing patterns of narratives or rather strategies (1033).

For ‘fit and conform’, on the one hand, “the objective ... is to convince ... that the niche can become competitive on conventional, regime criteria” (ibid.). And, policy instruments are “represented as temporary” or as “enhancing competitiveness” (ibid.). For ‘stretch and transform’, on the other hand, “the objective is to convince ... that the rules of the game need to be changed” (ibid.). And, policy instruments are “represented as manifesting widely desired ... criteria” (ibid.). Transition scholars have also noted that, in practice, the narratives of actors can include elements of both

patterns of narratives. They have, in particular, noted that “stretch-and-transform agendas may be embedded within fit-and-conform narrative strategies” (Rosenbloom et al. 2016: 1285).

The concept of strategies in transition studies is not a concept newly developed by transition scholars, but is rather based on existing theories. This is, as noted above, also the case for narrative strategies in the NPF research. Considering this, and the possible common origins of the concepts of strategies in transition studies and in NPF research, it is appropriate to consider commonalities between those literatures in this regard. The two strategies of ‘fit and conform’ and ‘stretch and transform’ identified by transition scholars – then, notably – chime with the two narrative strategies ‘containment’ and with ‘expansion’ identified by NPF scholars. Those strategies identified by transition scholars and those strategies identified by NPF scholars address the scope of conflicts. I could, however, not identify corresponding common origins.

Transition scholars have in empirical studies identified different “discourses” and “storylines”, as well as different “frames” and “narratives” in relation to transitions (Isoaho and Karhunmaa 2019: 931 and 937).

Kern (2012), as already mentioned above, studied the “UK Carbon Trust policy initiative” (99). He identified “a ‘developing low carbon technology’ storyline which emphasised the necessity of having an independent, business-led organisation to promote energy efficiency and the development of low carbon technologies by recycling receipts from the climate change levy” (ibid.). The study also identified a “dominant market efficiency discourse” (ibid.).

Bosman et al. (2014) studied the “Dutch energy system” (55). They identified a “dominant storyline” around the assertion that “that the main driver for the energy transition is decarbonization and that this should be achieved in a European market, while keeping the energy supply secure and affordable” (ibid.). They also identified “storylines in the making ... relating to Germany’s Energiewende, decentralization of the energy system, new players entering the energy market and natural gas as transition fuel” (ibid.).

Rosenbloom et al. (2016) studied solar electricity in Ontario (Canada) (1275). They identified “PV [solar photovoltaic] legitimizing storylines” – including “PV as an economic development and innovation opportunity”, “as a key contributor to the efficient and effective operation of the electricity system”, “as an important part of climate change mitigation efforts”, as well as “as part of a new paradigm for energy production and provision” (Rosenbloom et al. 2016: 1281). They also identified corresponding opposing “PV delegitimizing storylines” (ibid.).

Raven et al. (2016) studied “low-carbon technology cases” – including photovoltaic, offshore wind and CCS – in two countries (170). For CCS and the Netherlands, they identified a narrative in support of this technology – “CCS ... [as] a proven technology (in the oil sector) that would be competitive under conventional economic criteria because of knowledge spill-overs from other sectors and the presence of depleted gas fields”, as well as “no radical changes to the existing system would be required” (Raven et al. 2016: 174). They also identified “counter-narratives” – with “CCS as producing unknown environmental risks (instead of addressing known ones), as uneconomical (because of high infrastructure costs and indefinite monitoring), and as blocking renewables (instead of bridging to them)” (ibid.).

Transition scholars have, thus, identified storylines or narratives in relation to transitions – regarding specific technologies (Rosenbloom et al. 2016; Raven et al. 2016), or regarding specific decarbonisation transitions (Kern 2012; Bosman et al. 2014). In addition, transition scholars differentiated between storylines or narratives – between ‘dominant’ and ‘in the making’ storylines or narratives (Kern 2012; Bosman et al. 2014), as well as between ‘delegitimising’ or ‘counter’ and ‘legitimising’ or supporting storylines or narratives (Rosenbloom et al. 2016; Raven et al. 2016).

Transition scholars have, then, analysed the similarities and divergences between the emerging storylines or narratives on the one hand, and the dominant storylines or narratives on the other hand (Kern 2012: 99; Bosman et al. 2014: 55-56; Rosenbloom et al. 2016: 1285; Raven et al. 2016: 177). In doing so, some studies have referred to the above-mentioned two patterns of political narratives or rather strategies, ‘fit and conform’ and ‘stretch and transform’ (Rosenbloom et al. 2016: 1285; Raven et al. 2016: 177). While other studies have identified patterns or rather strategies, but not referred to the above-mentioned two patterns (Kern 2012: 99; Bosman et al. 2014: 55-56).

This thesis’ approach with regard to strategies, as noted above, reflects existing NPF research by considering the narrative strategies that NPF scholars have referred to most. In doing so, the thesis – then – in particular focuses on the strategies ‘containment’ and ‘expansion’. That takes into account that those strategies identified by NPF scholars, notably, chime with the two strategies ‘fit and conform’ and ‘stretch and transform’ identified by transition scholars (as highlighted above).

Moreover, the thesis identifies combinations of narrative elements and then identifies possible strategies in relation to the combinations. In doing so – and reflecting existing transition studies

research – the thesis identifies dominant and emerging narratives. It identifies such dominant and emerging narratives with regard to the grounding of the narratives as well as with regard to the narratives as a whole.

The narratives might then show a grounding of traditional environmental economics-based or of novel innovation studies-based and novel SPT-based solutions, as defined above, complemented by traditional or novel ‘realisations’ of other narrative elements. Those realisations of other narrative elements include traditional environmental economics-based, as well as novel innovation studies-based and novel SPT-based evidence – as also defined above. Those realisations of other narrative elements, in addition, include traditional ‘mobility too inefficient’ as well as novel ‘mobility demand too high’ problems. The differentiation between traditional and novel problems is, in this case, based on the past development of transport studies – as outlined hereinafter. Emerging narratives might – then, ultimately – show a grounding of novel innovation studies-based and novel SPT-based solutions, and this grounding might then be complemented by novel or by traditional realisations of other narrative elements.

## 2.6. Emergent structures

In this literature review, I have so far addressed shallower incumbency associated with public authorities or rather aspects of the regime associated with public authorities. I now turn to deeper incumbency associated with public authorities or rather aspects of the landscape associated with public authorities. For doing so, I – here – address the structures emerging from the micro-politics of transition processes.

Transition scholars have adopted different empirical foci and conceptual approaches when studying those emergent structures.

Kuzemko et al. (2016) studied “sustainable energy system change” in the UK and Germany (96 and 102). For doing so, they drew on the ‘new institutionalisms’ – in particular on ‘sociological institutionalism’ (Kuzemko et al. 2016: 98 and 100). In addition, Lockwood et al. (2017) studied “sustainable energy transitions” in the UK and “other countries, especially Germany, Denmark and the US” (312 and 313). For doing so, they drew on ‘historical institutionalism’ (313).

Moreover, Andrews-Speed (2016) studied the “low-carbon energy transition” in China and in “Europe” (216 and 222). For doing so, they drew on the new institutionalisms, as well as on DI (ibid.). In addition, Kern (2012) – as already noted above – studied the “UK Carbon Trust” (90). For doing so, he drew on DI (93).

Furthermore, Johnstone and Stirling (2020) studied “nuclear trajectories in Germany and the United Kingdom” (1). For doing so, they considered “general national political institutions and elite culture” – drawing on the new institutionalisms (Johnstone and Stirling 2020: 5). They also considered “qualities of national democracies” – drawing on the “literature comparatively assessing democracies” (ibid.).

Finally, Chilvers and Longhurst (2016) studied “case[s] ... of public engagement in UK low carbon energy transitions” (592). For doing so, they considered “socio-technical collective[s] of participation, which emerges through the co-production of subjects ..., objects ... and procedural formats ...” – drawing on “a constructivist and relational STS perspective which views participation as an emergent and co-produced phenomenon in itself, and pays particular attention to the circumstances of its construction, performance, productive dimensions, and effects” (Chilvers and Longhurst 2016: 586).

The studies of emergent structures – thus – considered several contexts, except for Kern’s (2012) study as well as Chilvers and Longhurst’s (2016) study that only considered one context.

Moreover, as regards the conceptual approaches adopted, the studies show a shift from the new institutionalisms to DI, with an underlying shift in emphasis from the objective positions of actors to subjective perceptions of positions<sup>15</sup>. In addition, Chilvers and Longhurst’s (2016) study presents a more fundamental shift away from the new institutionalisms. It specifically focused on ‘participation’, and this “beyond the usual locations in which participation ... is usually considered taking a systemic perspective on democratic engagement” (Johnstone and Stirling 2020: 21). To do so, it also went “beyond popular ‘residual realist’ ... notions of participation”, and moved beyond “pre-given categories or normative principles” (Chilvers and Longhurst 2016: 586 and 602).

This thesis’ approach with regard to emergent structures reflects existing research by drawing on DI, as well as drawing on policy work theory. The conceptual approach adopted by the thesis, in this case, reflects the literature’s shift from new institutionalisms to DI, as well as to a certain extent the literature’s more fundamental shift away from the new institutionalisms – with the taking of a more systemic perspective. The thesis, in this case, considers the Commission’s practices, including beyond the formal processes (as outlined hereinafter).

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New institutionalisms – on the one hand, as outlined hereinafter - include ‘rational choice institutionalism’, ‘historical institutionalism’ and ‘sociological institutionalism’. Those emphasise the objective positions of actors – rationalist incentives or logic of calculation (rational choice institutionalism), historical paths or logic of path-dependence (historical institutionalism) or cultural norms or logic of appropriateness (sociological institutionalism) (as outlined hereinafter). DI – on the other hand, as also outlined hereinafter – emphasises ideas – subjective perceptions of position, and actors can gain power from their ideas (as also outlined hereinafter).

## 2.7. Context and interactive processes, as well as policy work accounts

In the above overview of studies addressing structures emerging from the micro-politics of transition processes, I have identified the conceptual approaches adopted by transition scholars in those studies – including DI. I have, however, not considered the definitions of the core concepts of those conceptual approaches, as put forward by those studies.

I – therefore, here – provide a review of the DI literature and its core concepts – context and interactive processes. DI, in this case, constitutes one part of the conceptual approach with regard to emergent structures adopted by the thesis. In addition, I provide a review of the policy work theory literature and its core concept of policy work accounts. Policy work theory, in this case, constitutes the other part of the conceptual approach with regard to emergent structures adopted by the thesis. Also drawing on policy work theory, to recall, allows to consider ‘political epistemologies’, as well to address both the context and the interactive processes regarding this.

DI is “an umbrella concept for a vast range of approaches to the study of institutions” (Panizza and Miorelli 2013: 301).

DI “is a natural progression from the three older new institutionalisms” – “rational choice institutionalism”, “historical institutionalism” and “sociological institutionalism” (Schmidt 2010 - 1: 64). For the older new institutionalisms institutions, on the one hand, institutions are “external structures” in “stable equilibria”, that are “constraining” (Schmidt 2008: 322 and 304; Schmidt 2010 - 1: 55; Schmidt 2010 - 2: 2). Power is defined “by (objective) position alone” (Schmidt 2010 - 2: 18; Schmidt 2010 - 1: 60-61). For DI, on the other hand, institutions are “simultaneously constraining structures and enabling constructs of meaning, which are internal to ‘sentient’ (thinking and speaking) agents” (Schmidt 2010 - 2: 4; Schmidt 2008: 322; Schmidt 2010 - 1: 55). DI is, therefore, “taking ideas ... seriously” (Schmidt 2010 - 1: 53). And, power can no longer be defined “by (objective) position alone” (Schmidt 2010 - 2: 18; Schmidt 2010 - 1: 60-61). Rather, ideas influence “(subjective) perceptions of position”, and “actors can gain power from their ideas” (ibid.).

DI, however, does not just reject the older new institutionalisms. Rather, the older new institutionalisms provide “background information” for DI (Schmidt 2008: 314; Schmidt 2010 - 1: 60; Schmidt 2010 - 2: 12). The key question for DI is then: “When do ideas and discourse matter ...? And when don't they?” (Schmidt 2010 - 1: 61). More specifically, the key question for DI is then: When do ideas matter, and when do “rationalist incentives” or “logic of calculation” (rational choice institutionalism), “historical paths” or “logic of path-dependence” (historical institutionalism) or

“cultural norms” or “logic of appropriateness” (sociological institutionalism) matter (Schmidt 2010 - 1: 61, 55 and 47; Schmidt 2010 - 2: 4 and 21)?

DI, then, differentiates between “context” and “interactive processes” (Schmidt 2015 - 2: 183-185 and 179-183). DI, moreover, identifies actors’ “abilities” in relation to context and interactive processes – “background ideational abilities” as well as “foreground discursive abilities” (Schmidt 2008: 315; Schmidt 2010 - 1: 55-56; Schmidt 2010 - 2: 14-15; Schmidt 2015 - 2: 176-177). In this case, those abilities are “what makes the actors sentient” (Schmidt 2015 - 2: 176; Schmidt 2010 - 2: 4).

For context, DI refers to institutions or external structures, as defined by the older new institutionalisms (Schmidt 2018: 315; Schmidt 2010 - 1: 55). Those institutions or external structures (as defined by the older new institutionalisms) include “incentive structures” (rational choice institutionalism), “macro-historical structures and regularities” (historical institutionalism), as well as “cultural norms and frames” (sociological institutionalism) (Schmidt 2010 - 2: 5). DI, more specifically, defines context as “formal institutions” determining “who talks to whom ... where and when” (Schmidt 2015 - 2: 184). Context also encompasses “ideational rules or rationality” as well as “logic[s] of communication” (or rather informal rules) (Schmidt 2015 - 2: 183-184). Actors’ background ideational abilities, subsequently, relate to this context, and refer to the “capacities, dispositions, and know-how related to how the world works and how to cope with it” (Schmidt 2010 - 2: 14; Schmidt 2008: 315; Schmidt 2015 - 2: 176). Context and background ideational abilities are associated with stability (Schmidt 2008: 322).

For interactive processes, DI differentiates between “coordinative discourse” and “communicative discourse” (Schmidt 2008: 305; Schmidt 2010 - 1: 56; Schmidt 2010 - 2: 15; Schmidt 2015 - 2: 179-180). Those discourses “generate” and “communicate” “ideas” respectively (Schmidt 2010 - 1: 47; Schmidt 2008: 306). Schmidt has identified different “forms” of ideas – including “frames”, “narratives” and “stories” (Schmidt 2008: 309; Schmidt 2014: 191). In addition, for coordinative discourse, Schmidt has referred to the discourses in “epistemic communities” and in “advocacy coalitions” (Schmidt 2010 - 1: 56; Schmidt 2015 - 2: 180). Actors’ foreground discursive abilities, subsequently, relate to these interactive processes, and “refer to people’s ability to think outside the institutions in which they continue to act, to talk about such institutions in a critical way, to communicate and deliberate about them, to persuade themselves as well as others to change their minds about their institutions, and then to take action to change them” (Schmidt 2010 - 2: 16; Schmidt 2015 - 2: 177). Interactive processes and foreground discursive abilities are associated with stability or change (Schmidt 2008: 322; Schmidt 2010 - 2: 16; Schmidt 2015 - 2: 177).

DI studies have, then, primarily focused on the interactive processes, on the coordinative and the communicative discourses (Radaelli et al. 2013: 509-513; Schmidt 2014: 198-205; Schmidt 2016: 1039-1048 – for example). DI scholars have, in doing so, studied interactive processes regarding a specific policy conflict, on the one hand – regarding the “EU’s sovereign debt crisis” and the “eurozone rules” (Schmidt 2014; Schmidt 2016). DI scholars have, on the other hand, studied interactive processes regarding context (or regarding a specific aspect of context), for different policy conflicts – regarding Commission IAs, for eight policy initiatives (Radaelli 2013: 506). DI scholars – therefore, for analytical purposes – differentiate between interactive processes regarding the policy conflict on the one hand, as well as interactive processes regarding the context (or regarding a specific aspect of context) on the other hand.

Moreover, DI studies have also, to different degrees, addressed context – from context not directly addressed, to “context ... considered throughout” (“formal institutions” and “informal rules”) and with explanations based on “differences in ... institutional context ... but also in meaning and discursive context” (Radaelli et al. 2013; Schmidt 2014: 190; Schmidt 2016: 1034).

This thesis’ approach with regard to context and interactive processes, then, reflects the existing DI research. It considers both context (formal institutions and informal rules), as well as interactive processes. For interactive processes, it firstly considers interactive processes regarding the context (or regarding a specific aspect of context), and it secondly considers interactive processes regarding the policy conflict. For the latter, the thesis – in this case – draws on the NPF with its core concepts of policy narratives and coalitions (as outlined above).

One of the context aspects that has been highlighted by research is “how science and politics should interact” or “the relationship ... among science, policy and the public” (Strassheim 2015: 322). That context aspect has been referred to as “political epistemologies” (ibid.).

Critical policy studies have addressed that context aspect – for example by studying “policy epistemics”, as “ways in which the members of ... communities share background assumptions about the particular problem area, ... ideas about the relations of particular scientific findings to decision-making, the role – if any – of citizen involvement, how they respond to criticism and opposition from outside ... communities” (Fischer 2009: 164-165; Strassheim 2015: 32). In addition, STS has addressed this context aspect – for example by studying “civic epistemologies”, as “public

knowledge ways', that comprise preferred modes of producing public knowledge and conducting policy deliberation" (Jasanoff 2012: 9; Strassheim 2015: 32).

For this thesis, I – then – focus on that context aspect of political epistemologies.

Policy work theory (in critical policy studies) is one of the approaches used for studying political epistemologies. Policy work theory identifies "various accounts that policy workers give of their own practice and the accounts that outside observers (i.e., academic researchers) might give" (Colebatch et al. 2010: 22-23). The different "accounts of policy work" (or policy work accounts) "frame ... the policy process in a specific way" (Colebatch 2010: 31 and 34). I hereinafter outline different policy work accounts identified in that and associated literatures.

The "**authoritative choice**" account understands the policy process as "identifying problems, choosing appropriate responses ...", as identifying the "optimal course of action" or solution (Colebatch 2010: 32 and 35). Policy workers are here "advisors" (Colebatch 2010: 35). As regards STS, this policy work account chimes with "scientism" – "science ... [considered to be] essentially nonpolitical" (Brown 2015: 9; Colebatch 2010: 34).

In addition, the "**structured interaction**" account understands the policy process "as managing areas of concern, [and] seeking mutually acceptable outcomes", as the "generation of an outcome [or solution] considered acceptable" (Colebatch 2010: 32 and 36). This policy work account – as regards STS – chimes with the "description of scientific practice" and "science ... [as] politics by other means", as well as the "description of boundary-work" (Brown 2015: 11-15; Hoppe and Colebatch 2016: 137).

Moreover, the "**social construction**" account understands the policy process as "marked by conflict and ambiguity regarding the problems to be addressed, which voices should be heard, and what activities may be appropriate", as developing "shared understandings" (Colebatch 2010: 33 and 36). Policy workers are here "facilitators" and "institutional entrepreneurs" (challenging the context) (Hoppe and Colebatch 2016: 138 and 142). This policy work account – as regards STS – chimes with "'activist' strands of STS", "articulating and promoting a particular conception of democracy" (Brown 2015: 15; Hoppe and Colebatch 2016: 142). Relevant conceptions of democracy include "deliberative democracy" and "poststructuralist political theory". Specific social construction accounts – based on those conceptions of democracy promoted – can then be identified (as outlined hereinafter).

In **deliberative democracy**, actors “reach ... shared ideas” or “consensus”, through a “collaborative” and “inclusive” dialogue (Machin 2013: 77; Wagenaar 2011: 230-231). In this case, “players ... understand and reframe their identities in relation to a larger picture and in a way contingent on others’ identities” (Wagenaar 2011: 231). The aim is, then, to “democratize science and enhance public participation” (Strassheim 2015: 321; Collins et al. 2017: 580). In this case, “epistemic equality” or “epistemic neutrality” should be ensured (Strassheim 2015: 321; Wagenaar 2011: 231). Moreover, “an understanding that ‘consensus’ is only reached when all interests have been explored and every effort has been made to satisfy these concerns” is required (Wagenaar 2011: 231).

**Poststructuralist political theory** assumes that identity is fundamentally based on “difference” – “what is thought in a discourse or identity always implies what is unthought but present in another discourse or identity” (Wagenaar 2011: 144). In this case, identities are jointly “constituted” (Machin 2013: 92). As a result, consensus becomes a “conceptual impossibility”, and “apparent consensus is really a disguised expression of power” (Wagenaar 2011: 148; Machin 2013: 90). Consensus is limited to “conflictual consensus” (Machin 2013: 93). The aim is, then, to “disarticulate” and “transform” current “hegemonic ... discourses” (Mouffe 2005: 33 and 52). In this case, “voices that have been excluded or ignored” should be brought to the fore (Machin 2013: 101). And, “alternative perspectives” should be “clearly differentiated” (Machin 2013: 101; Mouffe 2005: 120).

This thesis, then, analyses the context and the interactive processes, with a focus on the context aspect of political epistemologies, and in relation to policy work accounts. The thesis does so in relation to the policy work accounts outlined above – which are summarised in **Appendix I**. The summary also outlines empirical evidence which would unequivocally confirm – or would at least clearly suggest – a certain policy work account. In other words, the summary also includes – drawing on process tracing literature (as outlined hereinafter) – “sufficient” and “necessary” “empirical fingerprints” for the different policy work accounts (Collier 2011: 825; Beach and Pedersen 2019: 155-156)<sup>16</sup>.

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<sup>16</sup> Empirical fingerprints are – in this case – predictions regarding empirical observations. And, the researcher “then attempt[s] to observe whether the posited fingerprints are actually present in the ...empirical record” (Beach and Pedersen 2019: 155-156). In addition, sufficient and necessary empirical fingerprints are – in this case – differentiated in terms of the “uniqueness of evidence” and the “certainty of evidence” (Beach 2017: 12). Uniqueness refers to “whether there are any plausible alternatives for finding the particular empirical

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material" (ibid.). And, certainty entails "that the prediction ... must be observed" (Beach and Pedersen 2013: 101).

## 2.8. Transition management framework

Transition scholars have developed the prescriptive context-focused transition management framework. That framework addresses the structures emerging from the micro-politics of transition processes in a prescriptive manner – identifying such structures that are considered to foster rather than to impede the deliberate acceleration of transitions by public authorities.

As is the case for context and the interactive processes, this thesis analyses the transition management framework with a focus on context aspect of political epistemologies, and in relation to the policy work accounts (as summarised in **Appendix 1**). In this case, it treats the transition management framework – as outlined hereinafter – as ‘empirical evidence’.

The transition management framework identifies four different types of “governance activities” – “strategic, tactical, operational, and reflexive” (Loorbach 2010: 168). Strategic activities relate to the landscape level within the MLP. According to Loorbach, the “level of activities” is the “system” (ibid.: 171). This encompasses “activities and developments that deal primarily with the ‘culture’ of a societal (sub-) system as a whole: debates on norms and values, identity, ethics, sustainability, and functional and relative importance for society” (ibid.: 169). And, tactical activities relate to the regime level within the MLP. In this case, the “problem scope” is the regime (ibid.: 171). This encompasses “steering activities that are interest driven and relate to the dominant structures (regime) of a societal (sub-) system” (ibid.: 169). And, operational activities relate to the niche level within the MLP. In this case, the problem scope is the “project” (ibid.: 171). This encompasses “experiments and actions ... generally referred to as ‘innovation’” (ibid. 170). Finally, reflexive activities relate to the former three activities, and thus also to the landscape, regime and niche levels (ibid.). This encompasses “monitoring, assessments and evaluation of ongoing policies, and ongoing societal change” (ibid.).

Loorbach (2010) has considered how the governance activities can be “influenced” (171). For this purpose, he has developed a “framework for transition management” (ibid.: 171-172). The transition management framework stipulates that – at first – a “transition vision” is to be developed at the strategic level (or rather at the landscape level). Such visions “primarily include the shared basic principles for long-term ... development” (Loorbach 2010: 174). “Transition pathways” are to be identified at the tactical level (or rather at the regime level). Different transition pathways can contribute to achieving a specific transition vision, and a single pathway can contribute to achieving different visions (ibid.: 175-176). Subsequently, experiments are to be developed at the operational

level (or rather at the niche level). These are to contribute to or “fit within ... the vision and transition paths [or pathways] developed” (ibid.: 176). Finally, at the reflexive level (or rather at the landscape, regime and niche levels), the “transition process ... [is to be] monitored with regard to the rate of progress, the barriers and points to be improved” (ibid.: 177).

The transition management framework, moreover, stipulates that transition visions (at the landscape level) are to be developed within “transition arenas”. The members of transition arenas are “frontrunners”, “selected based on their competencies, interests and backgrounds”, and participating “on a personal basis” (Loorbach 2010: 173). At the same time, “a certain representation from the existing regime is [also] necessary” (ibid.: 174). Transition visions are to be identified by the members of the transition arenas through consensus (Loorbach 2010: 174-175; Kenis et al. 2016: 575). With regard to the transition pathways (at the regime level), the transition management framework stipulates that these are to be developed in “transition network[s] stemming from the transition arena[s]” (Loorbach 2010: 175). The members of transition networks are able to contribute to the implementation of the transition pathways (ibid.: 176). Transition pathways are to be identified by the members of the transition networks. This, however, does not occur through consensus, as is the case for transition visions. Rather, a diversity of pathways is maintained (Loorbach 2010: 174-175; Kenis et al. 2016: 575). Finally – with regard to experiments and monitoring – the transition management framework does not stipulate how these are to be conducted. The transition management framework only stipulates that experiments are to contribute to visions and pathways, and that all of these are to be subject to monitoring (Loorbach 2010: 176 and 177).

According to the transition management framework, transition visions (at the landscape level) are identified by the members of the transition arenas through consensus. The aim for consensus on strategic activities “resembles ... deliberative approaches” (Kenis et al. 2016: 575). According to the transition management framework, the members of transition arenas – identifying transition visions – are frontrunners. In this case, “participation should be based on epistemic rather than democratic criteria such as the representation (e.g. of interests), or representativeness (to ensure diversity)” (Hendriks 2009: 352). Analysing the transition management framework in relation to the policy work accounts, I, here, detect the empirical fingerprints ‘epistemic equality’ (“participation ... based on epistemic ... criteria”) and ‘consensus’ – these correspond to the policy work account deliberative social construction account (necessary fingerprint and sufficient fingerprint).

In addition – for tactical activities or transition pathways (at the regime level) – the aim is “dissensus” rather than consensus, with a diversity of pathways being maintained (Kenis et al. 2016:

575; Loorbach 2010: 174-175). Here, I detect the empirical fingerprint ‘conflictual consensus’ (“dissensus”) – this corresponds to the conflictual social construction account (sufficient fingerprint).

Moreover – under the transition management framework – operational activities or experiments (at the niche level) are not a “matter of conscious ... decisions” (Kenis et al. 2016: 576). Rather, experiments are subject to selection by the “market’, by “existing regimes” (Kenis et al. 2016: 576 and 580). In addition, it is assumed that “niche lessons will be taken up and acted upon consensually” (Scrase and Smith 2009: 719).

Analysing the transition management framework in relation to the policy work accounts, I – therefore, here – detect empirical fingerprints corresponding to the social construction accounts – including the deliberative social construction account and the conflictual social construction account. This constitutes the framework’s initial broad orientation in relation to the policy work accounts.

Furthermore, transition arenas and transition networks are placed outside of existing institutions, they are “extra-institutional” (Kenis et al. 2016: 578). This raises the question of how transition arenas and transition networks will interact with existing institutions, with “the context of representative democracy” (Hendriks 2009: 342).

Scholars have, then, considered the challenge of the interaction of transition arenas and transition networks with existing institutions, and provided corresponding critique of the transition management framework. Hendriks (2009) has noted that transitions require “trades-offs and difficult political decisions will need to [be] negotiated, and in most post-industrialised nations this will occur in the context of existing norms and institutions of liberal democracy” (343). Voß et al. (2009) have called for “re-designing transition management” (295). This entails “tak[ing] ... care of democratic legitimacy” and “ensur[ing] ... broad participation of actors who co-produce new system and those who are affected” (Voß et al. 2009: 293 and 295). Again analysing the transition management framework in relation to the policy work accounts, I – here – detect the empirical fingerprint ‘not selection of research actors or rather stakeholders’ – this corresponds to the structured interaction account (necessary fingerprint).

Scholars have, moreover, critiqued the transition management framework. Kenis et al. (2016) have noted that “transition management fails to fully acknowledge power relations, radical pluralism and the possible constitutive role of conflict in society” (570). And, Scrase and Smith (2009) have

argued that transition management's focus on consensus actually excludes the possibility of transitions (724) – with consensus being hegemonic. Here, I detect the empirical fingerprint 'conflict of the actors' – this corresponds to the conflictual social construction account (necessary fingerprint).

Analysing the transition management framework in relation to the policy work accounts, I – therefore, here – detect empirical fingerprints corresponding to the structured interaction account on the one hand, and to the conflictual social construction account on the other hand. This constitutes the framework's critique with regard to policy work accounts. That critique – then, on the one hand – presents a specification of the framework's initial broad orientation (from social construction accounts to conflictual social construction account only). It, on the other hand, presents a shift away from the framework's initial broad orientation (from social construction accounts to structured interaction account).

## 2.9. Addressing the different deliberate acceleration aspects

As stressed above, existing research has only to a very limited extent addressed the different deliberate transition acceleration aspects – i.e. deliberate transition acceleration by public authorities through policy instrument mixes for transitions, shallower and deeper incumbency associated with public authorities – together. Existing research has, rather, mostly addressed the individual aspects separately, as outlined above. I, here, consider the existing research that has to a very limited extent addressed the different aspects regarding the deliberate acceleration of transitions by public authorities together.

Johnstone et al.'s (2017) study of UK energy policy between 2010 and 2015 was briefly introduced above.

In that study, Johnstone et al. (2017) reviewed the literature on policy mixes for transitions (148-149). They – then, firstly – addressed policy mixes for renewable energy, for shale gas fracking and for nuclear power (Johnstone et al. 2017: 150-153). In doing so, they considered both creative and destructive policy instruments (ibid.).

Johnstone et al. (2017) also reviewed the transition research on incumbency or rather on incumbencies (149-150). They, however, did not consider the more specific transition studies research addressing shallower and deeper incumbencies associated with public authorities – including research based on the integration of transition studies and policy studies and research addressing strategies in transition conflicts, as well as research addressing structures emerging from the micro-politics of transition processes and research setting out the prescriptive context-focused transition management framework (as all outlined above). Johnston et al. (2017) – then, secondly – considered “narrative[s] of policy” or rather “strategies for incumbency” (or rather considered shallower incumbency), with regard to nuclear power and fracking (150 and 155-156). In doing so, they considered the strategies “‘securitization’, ‘masking’, ‘reinvention’, and ‘capture’” (155). They – then, thirdly – discussed implications of the findings regarding policy mixes and narratives (or rather discussed deeper incumbency) (Johnstone et al. 2017: 156-157). In doing, they considered the “UK polity as a whole” (156-157).

This thesis' approach with regard to the deliberate acceleration of transitions by public authorities, then, builds on the approach adopted by the study by Johnstone et al. (2017). The thesis also addresses the different aspects regarding the deliberate acceleration of transitions by public

authorities together. At the same time, the thesis also builds on Johnstone et al.'s (2017) study. The thesis goes beyond only considering the general research addressing incumbency or rather incumbencies. It, rather, also considers more specific transition research addressing the different deliberate acceleration aspects (as outlined above).

## Chapter 3 – Methods

### 3.1. Overview of the methods

As outlined above, the thesis assesses the extent to which the policy outcome (the 2011 Transport White Paper) (Commission 2011 - 1) shows an instrument mix for transitions, the extent to which that mix is encompassing and balanced (dependent variable). It, also, considers urban people mobility transition policy narratives deployed by actors and/or coalitions during the making of the 2011 Transport White Paper (independent variable or rather causal mechanism). Moreover, the thesis analyses the extent of the influence of those narratives on that policy outcome. And, the thesis analyses the extent to which the policy-making context (independent variable) shapes those narratives.

In this chapter, I outline the research methods used in this thesis.

Firstly, I outline the methods used for identifying the possible instrument mix for transitions in the policy outcome, as well as the methods used for identifying the transition policy narratives deployed by actors and/or coalitions. For doing so, I review the literature on ‘qualitative content analysis’ (in **Section 3.2.**). I, then, outline the ‘coding frame’ developed for this thesis (in **Section 3.3.**). And, I set out the empirical material analysed (in **Section 3.4.**). I, ultimately, outline the methods used for identifying instrument mixes, coalitions and policy narratives in relation to the making of the 2011 Transport White Paper (in **Section 3.5.**).

Secondly, I outline the methods used for identifying the ‘policy work instances’ (in **Section 3.6.**).

Thirdly and finally, I outline the methods used for assessing the extent of the influence of those narratives deployed by actors and/or coalitions on the policy outcome, and for analysing the extent to which the policy-making context shapes those narratives. For doing so, I review the literature on ‘process tracing’ (in **Section 3.7.**).

### 3.2. Content analysis

As noted above, NPF studies have identified policy narratives by using ‘content analysis’ of relevant documents. NPF scholars have, subsequently, conducted “quantitative data analysis” as well as “qualitative data analysis” to analyse the data gathered through such content analysis (Pierce et al. 2014: 36).

Shanahan et al. (2018) have noted that both quantitative data analysis or rather “statistical analyses” on the one hand, as well as qualitative data analysis on the other hand, “are appropriate for NPF analyses” (341). Most NPF studies have used quantitative data analysis (ibid.). Though some NPF studies have used qualitative data analysis (Radaelli et al. 2013; O’Byrne et al. 2014; Ney 2014 – for example).

Some scholars have explained the use of qualitative data analysis by noting that the relevant NPF study is “exploratory” (Ney 2014: 215). In other words – and drawing on the literature on ‘qualitative content analysis’ – qualitative data analysis is, in this case, considered appropriate for the “task” at hand (Mayring 2015: 22-25). Other scholars have explained the use of qualitative data analysis by noting that “the core of the NPF is not whether the approach to evidence is quantitative or qualitative, but rather whether one believes that inferences from evidence should be drawn on the basis of objective standards like validity and reliability” (O’Byrne et al. 2014: 111 and 127). Qualitative data analysis is, in this case, considered appropriate in general.

For this thesis, I conduct content analysis of the relevant documents, with subsequent qualitative data analysis of the data gathered. In this thesis, I – importantly – use such content analysis not only for identifying transition policy narratives, but also for identifying instrument mixes for transitions – as outlined hereinafter.

Referring to the qualitative content analysis literature, I – specifically – use “qualitative content analysis” (Schreier 2012; Schreier 2013; Mayring 2015), with a subsequent “present[ation of] ... results in qualitative style” or rather subsequent “qualitative analysis” (Schreier 2012: 219; Mayring 2015: 20-22). Qualitative data analysis is, in this case, appropriate in general (consideration stemming from NPF). In addition, qualitative content analysis is – in this case – appropriate for the task at hand. It is appropriate for analysing the making of the 2011 Transport White Paper (Commission 2011 - 1) – as a unique “flowing” process (my translation from German – “fließend”) (Mayring 2015: 24) (consideration stemming from the qualitative content analysis literature).

The literature on qualitative content analysis has, then, identified different “versions” of content analysis or rather of qualitative content analysis (Schreier 2013: 172-173). Those versions of content analysis differ in terms of how the “coding frame” is developed (Schreier 2012: 84). The coding frame is, in this case, used to “describe the data” (ibid.).

Schreier (2012), broadly, differentiates between a “data-driven way” and a “concept-driven way” of developing the coding frame (84). Mayring (2015) similarly differentiates between an “inductive way” and a “deductive way” of developing the coding frame (85).

For this thesis, I engage in a concept-driven way or rather deductive way of coding frame development. This is appropriate as I refer to relevant literatures in transition studies during the coding frame development. I, in this case, address the different aspects of transition conflicts that transition scholars have considered – including problems, policy instrument mixes, as well as analytical approaches to studying transitions.

Qualitative content analysis scholars have identified a sequence of steps for the development of such coding frames, with specific associated requirements.

In a **first step**, different “main categories”, as well as corresponding “hierarchical levels”, are to be identified (Schreier 2013: 175; Schreier 2012: 61-71). As regards the identification of policy narratives, main categories correspond to the narrative elements – as defined above for the purposes of this thesis.

Coding frames vary in complexity, and can in addition to main categories include “subcategories” and “sub-subcategories” (ibid.). Scholars have set out specific requirements for the different hierarchical levels. The main categories are subject to the “requirement of unidimensionality” – each of the main categories “should cover one aspect of the material only” (Schreier 2013: 175; Schreier 2012: 71-75). Moreover, the subcategories are subject to the “requirement of mutual exclusiveness” – “the same unit of coding should be assigned to only one subcategory within a given dimension” (Schreier 2012: 75-76; Schreier 2013: 175). In addition, the coding frame as a whole is subject to the “requirement of exhaustiveness” – all possible “units of coding” are to be assigned to the main categories and to the subcategories (Schreier 2013: 175; Schreier 2012: 76-77). Meeting this ‘requirement of exhaustiveness’ often requires identifying some material that is not of interest, identifying this material as “miscellaneous” (Schreier 2012: 93-94).

‘Units of coding’, then, refer to “parts of the ... [material] that you can meaningfully interpret with respect to the categories at hand” (Schreier 2012: 131-133). This “dividing the material into [such]

units” is in content analysis done using “thematic criteria”, not “formal criteria” such as “words, sentences or paragraphs” (Schreier 2013: 178).

The coding frame developed for this thesis encompassed two hierarchical levels – main categories and subcategories. And, for this thesis, I code units composed of one to several words, and up to subclauses – as appropriate in relation to the coding frame.

In a **second step**, the main categories and the subcategories are to be defined (Schreier 2013: 176-177; Schreier 2012: 94-102).

Such definitions should encompass “names”, “descriptions” and “indicators” (Schreier 2013: 176-177; Schreier 2012: 94-102). A description “states what is meant by a given category and what features are characteristic of the category” (Schreier 2013: 176). And, indicators “can be specific words, or else they can be descriptions of the ways in which a phenomenon manifest itself in the data” (Schreier 2012: 99). With such indicators being “pointers” (ibid.). Moreover, examples from the material are to be selected to “illustrate” the categories (Schreier 2012: 101-102).

For this thesis, I set out descriptions and indicators for each of the main categories, and for each of the subcategories.

In a **third step** – in the “pilot phase” – “the coding frame is to be tried out on part of the material” (Schreier 2013: 178-179).

The material analysed in this “trial coding” should reflect the “variability” in the material (Schreier 2013: 178-179; Schreier 2012: 149-152). In addition, it should allow the application of all categories in the coding frame (ibid.). Trial coding is to be conducted on the material twice – either by two (or more) “coders” or by the same coder twice (or more) (Schreier 2013: 179; Schreier 2012: 167). For the latter, there should be a gap (of “10 to 14 days”) between the first and the second coding of the material (ibid.).

For this thesis – in terms of trial coding – I code the relevant material twice, with a gap of ten days between the first and second iteration. Coding is conducted using the “NVivo 12” software.

The coding frame is, subsequently, evaluated on the basis of the results of the trial coding (**fourth step**) (Schreier 2013: 179; Schreier 2012: 149-152).

Scholars have set out specific requirements for the evaluation of the coding frame, based on the results of the trial coding. Relevant criteria for the evaluation are “consistency” and “validity” (Schreier 2013: 179; Schreier 2012: 166-193). Ultimately, the coding frame is to be revised based on the results of the evaluation.

**Consistency** here refers to “agreement” when comparing different coding iterations (Schreier 2012: 166-167 and 170-172). Specific measures of agreement or “coefficients of agreement” have been developed – from “percentage of agreement” to more complex “coefficients” (Schreier 2012: 170-172; Neuendorf 2017: 174-178). The more complex coefficients take into account that agreement might simply occur by chance (ibid.). And, the coefficients are calculated for the mutually exclusive categories, i.e. for the subcategories etc. (Schreier 2012: 171). The aim of assessing consistency is here ultimately to identify “inconsistencies” or “flaws” in the coding frame, “pointing to overlaps between categories” (Schreier 2013: 179; Schreier 2012: 168). **Validity** here refers to “categories [of a coding frame] adequately represent[ing] the concepts under study” (Schreier 2012: 175). In the case of concept-driven coding frame development, “content validity” is considered adequate (ibid.: 189). In this case, “content validity is assumed to be present to the extent that an instrument covers all dimensions of a concept” (Schreier 2012: 185; Neuendorf 2017: 127). And, “expert evaluation” is to be used to assess the content validity of a coding frame (Schreier 2012: 189; Schreier 2013: 179). Alternatively, content validity can also be assessed formally. This can be achieved by considering units of coding linked to a certain category in relation to the underlying concept (Mayring 2015: 126). Or, this can be achieved by subjecting “hypothetical” units of coding – with known “meaning” in relation to the underlying concept – to the coding frame (ibid.). For this thesis – as regards consistency – I calculate the “kappa coefficient” (Neuendorf 2017: 175-178) using the NVivo 12 software. The kappa coefficient – as a complex coefficient – is “the most widely used reliability coefficient” (Neuendorf 2017: 177). Moreover – as regards content validity – I continuously, at least initially, refer to the relevant literatures in transition studies (formal assessment of content validity).

The coding frame is ultimately applied to the entire material – in a “main analysis phase” (**fifth step**) (Schreier 2013: 179-180; Schreier 2012: 194-218).

In this case – with regard to coding instances – the same approach outlined above for the trial coding is to be applied (Schreier 2012: 198-199). Although repeated coding for the entire material might not be possible, and might thus have to be limited to parts of the material only (ibid.).

For this thesis, coding in the main analysis phase is again conducted using the NVivo 12 software. It will, however, only be possible to code the material once – taking into account the only limited resources available for analysis.

### 3.3. Coding frame

In this thesis, I – as noted above – use content analysis, and a coding frame, not only for identifying transition policy narratives, but also for identifying instrument mixes for transitions – as outlined hereinafter.

The concept-driven or rather deductive coding frame developed for this thesis, then, encompasses five main categories (identified using upper case roman numbers – ‘I.’ etc.), as well as corresponding subcategories (identified using lower case roman numbers – ‘i.’ etc.). The main categories include ‘problems’, ‘solutions’ and ‘evidence’, as well as ‘characters’ and ‘setting’. As noted above, the main categories correspond to the narrative elements – as defined above for the purposes of this thesis. Moreover, the part of the coding frame relating to the main category ‘II. solutions’ is used for the identification of transition policy narratives, and for the identification of instrument mixes for transitions – as outlined hereinafter.

In outlining the coding frame, I – as noted above – refer to relevant literatures in transition studies. I, in this case, address the different aspects of transition conflicts that transition scholars have considered – including problems, policy instrument mixes, as well as analytical approaches to studying transitions. In outlining the coding frame, I – moreover – refer to research in transition studies which has specifically addressed mobility as well as to ‘transport studies’ research – taking into account the thesis’ focus on urban people mobility decarbonisation transition policy narratives.

The main category ‘**I. problems**’ encompasses two subcategories – ‘I.i. mobility too inefficient’ and ‘I.ii. mobility demand too high’. As regards that main category, transition studies have differentiated between transitions occurring through major transformations in the supply of societal services and/or major transformations in the use of societal services – as noted above.

Regarding the first subcategory – ‘I.i. mobility too inefficient’ – transition scholars and transport studies scholars or ‘transport scholars’ have considered the fuel efficiency of vehicles and the carbon intensity of fuels used by vehicles (Creutzig et al. 2011: 2399-2400; Monni and Raes 2008: 749; Kivimaa and Virkamäki 2014: 29; Nykvist and Whitmarsh 2008: 1374). In addition, they have considered the efficiency of modes of transport – resulting from the efficiency of vehicles and the intensity of fuels used in a given mode, as well as the “occupancy rate of vehicles” (Monni and Raes 2008: 749; Kivimaa and Virkamäki 2014: 29; Nykvist and Whitmarsh 2008: 1374). Regarding the second subcategory – ‘I.ii. mobility demand too high’ – transition scholars and transport scholars, have – subsequently and in a less detailed manner – considered travel need, transport demand and

the “amount of transport” (Creutzig et al. 2011: 2399-2400; Monni and Raes 2008: 749; Kivimaa and Virkamäki 2014: 29; Nykvist and Whitmarsh 2008: 1374).

The main category ‘**II. solutions**’ encompasses three subcategories – ‘II.i. environmental economics-based solutions’, ‘II.ii. innovation studies-based solutions’, as well as ‘II.iii. SPT-based solutions’. And, the main category ‘**IV. evidence**’ encompasses three subcategories – ‘IV.i. environmental economics-based evidence’, ‘IV.ii. innovation studies-based evidence’, as well as ‘IV.iii. SPT-based evidence’. As regards those main categories, transition studies have differentiated between destructive instruments, as well as creative instruments and instruments addressing final consumption – as noted above. And, the instrument types or rather solutions can – then, taking into account the transition approaches directly addressing instruments for transitions – be defined in relation to the underlying analytical approaches or rather transition approaches – as also noted above.

Regarding the first subcategory of ‘II. solutions’ – ‘II.i. environmental economics-based solutions’ – transport scholars have identified “low carbon fuel standards” and “fuel efficiency standards” as relevant solutions (Creutzig et al. 2011: 2399-2400; Santos et al. 2010 - 1: 10). Other solutions include “restrictions on vehicle circulation, vehicle ownership, parking ...” (Santos et al. 2010 - 1: 12). Solutions identified by transport scholars also include “differentiated” “taxes on purchase and ownership of ... vehicle[s]” and “subsidies to efficient vehicles and feebates” (Santos et al. 2010 - 1: 18-19; Creutzig et al. 2011: 2400). In addition, these include the subsidisation of infrastructure – as needed for specific technologies such as “fuel cells”, or as needed for specific modes such as walking and cycling (Santos et al. 2010 - 2: 60 and 81). These also include subsidies to “research and development” (R&D) in firms, or R&D in “universities and research institutes” (Santos et al. 2010 - 2: 81). Moreover, “taxes on usage of vehicles” have been identified as solutions – including “fuel taxes” and “distance driven tax” or “tolls”, as well as “carbon tax” (Santos et al. 2010 - 1: 21-24; Creutzig et al. 2011: 2400; Flachsland et al. 2011: 2102). Finally, transport scholars have identified emissions trading as solution – either “upstream” targeting fuel producers or car manufacturers, or “midstream” targeting fuel distributors or “downstream” targeting vehicle users (Santos et al. 2010 - 1: 16-17; Flachsland et al. 2011: 2103-2105; Creutzig et al. 2011: 2400).

Regarding the first subcategory of ‘IV. evidence’ – ‘IV.i. environmental economics-based evidence’ – evidence relates to the effectiveness of solutions or of combinations of solutions in terms of addressing the different externalities – in terms of addressing the negative externality of GHG

emissions, as well as the positive externalities related to knowledge and to adoption. Evidence especially consists of information regarding the cost-effectiveness (or cost-benefit) of solutions or of combinations of solutions. Such evidence, also, pertains to the “informational requirements” for identifying the most cost-effective (or most beneficial) solutions or combinations of solutions (Flachsland et al. 2011: 2108). For taxes on the usage of vehicles and emissions trading, transport scholars have considered uncertainties in identifying the “marginal abatement cost curve” (or the “marginal social benefit curve”) (Santos et al. 2010 - 1: 8-9; Flachsland et al. 2011: 2108). And, for low carbon fuel standards, transport scholars have considered uncertainties in identifying “lifecycle emissions” (Creutzig et al. 2011: 2403-2404). Transport scholars have, in addition, considered undesired effects of specific instruments. This in particular includes the “rebound effects” of fuel efficiency standards and of taxes or subsidies (Santos et al. 2010 - 1: 11, 20 and 23; Creutzig et al. 2011: 2401).

Regarding the second subcategory of ‘II. solutions’ – ‘II.ii. innovation studies-based solutions’ – solutions include targeted subsidies to R&D conducted in the public sector and/or R&D conducted in the private sector. These subsidies target specific technologies and possibly also specific applications, as well as the relevant actors or relevant groups of actors. They, for example, target “EV [electric vehicles] development” or “the development of fuel cells” (Köhler et al. 2013: 185). And, they, for example, target fuel cells in “material handling vehicles” (Andreasen and Sovacool 2015: 364). Moreover, solutions include fostering interactions between relevant actors or relevant groups of actors – including through “workshops”, “road-mapping” and “technology platforms” (Wieczorek and Hekkert 2012: 85). Such solutions, for example, support the formation of “professional networks” for “flywheel energy storage” (Wicki and Hansen 2017: 1132).

Regarding the second subcategory of ‘IV. evidence’ – ‘IV.ii. innovation studies-based evidence’ – evidence consists of information on specific TISs. The identified TISs vary in their technology specificity – from a more specific “fuels cells”-TIS or a “flywheel energy storage”-TIS, to a less specific “low carbon cars”-TIS (Andreasen and Sovacool 2015; Wicki and Hansen 2017; Köhler et al. 2013). Evidence relates to the weaknesses or strengths of TISs in terms of providing certain functions. Evidence also relates to the structure of TISs. The provision of functions is, in this case, mediated or influenced by the structure of TISs. In terms of the knowledge development function, scholars have, then, considered trends in R&D or in patent applications for specific technologies, and for specific applications. Scholars have also considered the distribution of these activities between the public sector and the private sector, as well as between actors or groups of actors in these (Köhler et al. 2013: 179-181; Pohl and Yarime 2012: 1441; Andreasen and Sovacool 2015:

363-365; Wicki and Hansen 2017: 1124-1125). In terms of the experimentation function, scholars have, moreover, considered trends “along technology and market dimensions” (Wicki and Hansen 2017: 1125). Actors’ strategies can, in this case, focus on a specific application or technology, or on a diverse set of applications or technologies (Pohl and Yarime 2012: 1441; Köhler et al. 2013: 182; Andreasen and Sovacool 2015: 364-366). Scholars have, in addition, considered the influence of policy and of resource availability, on knowledge development and on experimentation – i.e. they have considered the direction of search function and the resource mobilization function (Köhler et al. 2013: 182; Pohl and Yarime 2012: 1441; Wicki and Hansen 2017: 1125) (Köhler et al. 2013: 183; Andreasen and Sovacool 2015: 366). Resource availability here includes the access to human resources, as influenced by the availability of relevant education (Andreasen and Sovacool 2015: 366). Scholars have, finally, considered the influence of the presence of a relevant market, on knowledge development and on experimentation – i.e. they have considered the market formation function and the legitimation function. They have, in this case, addressed the drivers for or the barriers to the development of a “fully commercial market”, for specific technologies or for specific applications (Andreasen and Sovacool 2015: 366). This includes the cost and the performance, consumer trust, as well as the availability of the relevant infrastructure (Köhler et al. 2013: 182; Andreasen and Sovacool 2015: 366). And, this includes the competition between firms, as well as policy (Pohl and Yarime 2012: 1442; Köhler et al. 2013: 182).

Regarding the third subcategory of ‘II. solutions’ – ‘II.iii. SPT-based solutions’ – solutions consist of “sets of measures” addressing the various aspects of a certain mode of transport – or of a certain combination of mode of transport and “everyday activity” – simultaneously (Cass and Faulconbridge 2016: 10). Such sets of measures go beyond policy targeting the relevant technology and policy addressing the relevant infrastructure (Watson 2012: 493; Watson 2013: 129; Cass and Faulconbridge 2016: 11). Rather, such sets of measures also attempt to “reshape meanings” related to a certain mode of transport, or related to a certain combination of mode and activity – possibly by drawing on existing meanings (Watson 2012: 493; Kent and Dowling 2013: 91). And, they attempt to develop the competences required for a certain mode of transport, or required for a certain combination of mode and activity – possibly by drawing on existing competences or “capacities” (ibid.). Solutions, in addition, address the everyday activities – such as “working, socialising, shopping”, “engender[ing] the need for ... mobility” (Watson 2012: 493-494). Relevant solutions consist of “interventions in the organization, timing, and spacing of societal services and institutions” (Cass and Faulconbridge 2016: 10). This encompasses “spatial interventions” – essentially “land-use policies” (Cass and Faulconbridge 2016: 11; Santos et al. 2010 - 2: 55). This

includes “mixed-use developments”, as well as “hierarchical polycentric cities” (Cass and Faulconbridge 2016: 11; Santos et al. 2010 - 2: 55-58). This also encompasses “temporal interventions”. This includes “reduc[ing] ... ‘core hours ... and reliance on pay by the hour” (Cass and Faulconbridge 2016: 11). And, this includes “flexible start/end time for low carbon parents with no cost implications” (ibid.). Relevant solutions, moreover, include the fostering and/or the development of “counter-movements” such as “localism” (Zijlstra and Avelino 2012: 168 and 171-172). In this case, “the overall idea of self-reliant local communities reduces distances ...” (Zijlstra and Avelino 2012: 171-172).

Regarding the third subcategory of ‘IV. evidence’ – ‘IV.iii. SPT-based evidence’ – evidence consists of information on individual practices and their constituent elements – i.e. materials, meanings and competences. Some scholars have identified practices in relation to modes such as cycling or car driving (Watson 2012; Watson 2013; Spotswood et al. 2015). Other scholars have identified alternative versions of mode practices such as “velo-chic” or carsharing (Watson 2013: 127; Kent and Dowling 2013). Other scholars have, moreover, identified practices in relation to mode activity combinations such as “cycle-commuting” (Cass and Faulconbridge 2016: 4 and 6). Materials include vehicles or bicycles, roads or bicycle paths, as well as “safety equipment” and “wet weather protection” for cycling (Spotswood et al. 2015: 26; Cass and Faulconbridge 2016: 7). And, meanings include “interaction with nature” as well as for “health, exercise and transition time” for cycling (Cass and Faulconbridge 2016: 7). Meanings also include “progressive” and “freedom” for carsharing (Kent and Dowling 2013: 89). Finally, competences include “negotiating reservations and planning activities” for carsharing, as well as “maintaining comfort in all weathers” and “organizing work to minimize items to be carried” for cycling (Kent and Dowling 2013: 89; Cass and Faulconbridge 2016: 7). Evidence, furthermore, consists of information on relations between practices. Scholars have considered to what extent the elements of a given practice (such as cycling or “car-commuting”) overlap with other or existing practices (such as “automobility” or “car-shopping”), or to what extent the elements are unique (Kent and Dowling 2013: 88-89; Cass and Faulconbridge 2016: 6-7; Watson 2013: 124-125). Evidence, moreover, consists of information on systems of practices. The systems of practices broadly allow “accomplishing everyday life” (Watson 2012: 494). And, scholars have considered how this “wider system of practices ... produces the need for mobility” (Cass and Faulconbridge 2016: 4). With the spatial distribution and the “temporal sequencing” of practices ultimately producing “the need for mobility” or ultimately producing “time and space” (Cass and Faulconbridge 2016: 4 and 8).

The main category '**III. characters**' encompasses four subcategories – 'III.i. heroes', 'III.ii. undesired solutions and problems', 'III.iii. villains', as well as 'III.iv. victims'.

To recall – regarding the first subcategory, 'III.i. heroes' – NPF scholars define this as actors putting forward desired solutions (i.e. 'II. solutions') (Shanahan et al. 2018: 343; Shanahan et al. 2013: 459; Jones et al. 2014: 6). Regarding the second subcategory – 'III.ii. undesired solutions and problems' – I define solutions as being undesired, and not as being desired (as is the case for 'II. solutions'). And, I define the problems here as being the result of the undesired solutions, not as preceding the desired solutions (as is the case for 'I. problems'). The subcategory 'III.ii. undesired solutions and problems' is, in this case, needed for identifying the other two characters (for identifying 'III.iii. villains' and 'III.iv. victims'). To recall – regarding the third subcategory, 'III.iii. villains' – NPF scholars define this as actors putting forward the undesired solutions ('III.ii. undesired solutions ...') (Shanahan et al. 2018: 343; Shanahan et al. 2013: 459; Jones et al. 2014: 6). And, regarding the fourth subcategory – 'III.iv. victims' – NPF scholars define this as actors being harmed, being harmed by the undesired solutions and the resulting problems ('III.ii. undesired solutions and problems') (ibid.).

The main category '**V. setting**' encompasses two subcategories – 'V.i. reflection' and 'V.ii. critique'. Regarding the second subcategory – 'V.ii. critique' – I define this as critique by an actor, critique regarding 'II. solutions' and 'IV. evidence' previously put forward by other actors. Regarding the first subcategory – 'V.i. reflection' – I define this as reflection of an actor, reflection regarding 'II. solutions' and 'IV. evidence' put forward by this actor. Moreover, I define this as reaction of an actor, reaction to 'V.ii. critique' and reaction to 'III.ii. undesired solutions and problems' previously put forward by other actors.

A first draft coding frame was developed based on the above. This coding frame included descriptions and indicators for each of the main categories and each of the subcategories. This first draft coding frame was tried out, as well as – thereafter – evaluated and revised.

For the trial coding, three documents were analysed using the first draft coding frame – the 2011 Transport White Paper (Commission 2011 - 1), the summary of the IA for this White Paper (Commission 2011 - 3), as well as the response of the "European Automobile Manufacturers Association" (ACEA) to the second stakeholder consultation conducted in the context of the making

of the White Paper (ACEA 2009 - 2). Those documents were to reflect the variability in the material.<sup>17</sup>

Two trial coding runs were, then, conducted. In each run, I coded the three documents twice, with the required gap of ten days between the first and second iteration. Coding was conducted using the NVivo 12 software. I calculated the kappa coefficient also using the NVivo 12 software. The kappa coefficient was, in this case, calculated based on characters, and for each of the subcategories within the different main categories – i.e. for the mutually exclusive categories. I, here, consider a kappa coefficient value of above 0.60 as mostly acceptable, and a value of above 0.80 as acceptable (Neuendorf 2017: 167-168).

The first trial coding run using the first draft coding frame did not yet produce acceptable kappa coefficient values for the different subcategories (unweighted). Based on the insights gained during this first trial coding run, the first draft coding frame was substantially revised – producing a second draft coding frame. This second draft coding frame was used in the second trial coding run. The second trial coding run produced mostly acceptable to acceptable kappa coefficient values for the different subcategories (unweighted). The kappa coefficient ranged from 0.65 to 1 for the different subcategories.<sup>18</sup> The second draft coding frame was – therefore – considered adequate, and became the final coding frame.

The final coding frame is used for coding the entire empirical material (as set out hereinafter) – in the main analysis phase. Although it is important to note here, that the coding frame was subject to minor revisions throughout this main analysis phase.

The final coding frame for this thesis is set out in **Appendix II**. The coding frame includes descriptions and indicators for each of the main categories and each of the subcategories.

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This was difficult to achieve. And, indeed not all subcategories appeared in the trial coding material (four subcategories did not appear – III.iii.; IV.ii.; IV.iii.; V.ii.)

<sup>18</sup>

Unweighted kappa coefficient values for the subcategories, in second trial coding run:

I.i. - 0.65; I.ii. - 0.82;

II.i. - 0.78; II.ii. - 0.79; II.iii. - 0.87;

III.i. - 0.88; III.ii. 0.96; III.iii. - n/a; III.iv. - 1;

IV.i. - 0.98; IV.ii. - n/a; IV.iii. - n/a;

V.i. - 0.92; V.ii. - n/a.

### 3.4. Empirical material

As noted above, for this thesis, I collected the documents produced during the making of the 2011 Transport White Paper (Commission 2011 - 1). This included documents that are publicly available, and documents that could be requested from the Commission – under the EU regulation regarding public access to documents (Regulation (EC) No 1049/2001) (EU 2001).

Of the documents collected, I – as explained above – analysed all documents relevant for the urban people mobility decarbonisation transition. I, moreover, only analysed documents produced by European NGOs and associations, and not documents produced by national NGOs and associations. And, I only analysed documents produced by European associations of subnational public authorities, and not documents produced by individual subnational public authorities. In addition, I only coded documents in English. And, for studies, I only considered the final reports.

The documents analysed were further restricted in this manner – beyond only documents relevant for the urban people mobility decarbonisation transition, also only documents produced by European associations, only documents in English, as well as only final reports) – to take into account the only limited resources available for analysis.

Furthermore, the focus on European associations can also be justified in relation to previous research. In fact – as regards non-state actors – ‘EU studies’ scholars have, in their exploration of “interest representation” at EU level, mostly focused on “EU-level organisations” (Eising et al. 2017: 943). And, Eising (2017) has noted that the “ideal-typical interest representation strategy [of non-state actors] combines direct lobbying at national level with reliance on EU-level interest groups at the EU level” (1040). In addition – as regards subnational public authorities – EU studies scholars have noted that subnational public authorities can use “‘intra-state’ channels” (i.e. “via their parent state”) and “‘extra-state’ channels” (i.e. “directly at EU level”) (Tatham 2018: 675). They have noted that extra-state channels “are more frequently used” (ibid.). Those extra-state channels, then, include the use of “transnational networks and associations” (Tatham 2018: 675; Trobbiani 2019: 191). With subnational public authorities “progressively adapt[ing] ... to the mechanisms used by broader civil society [or non-state actors] to lobby EU policy-makers” – with “reorganization of their work along thematic lines”, in European associations (Trobbiani 2019: 195).

In addition, most of the relevant documents were – in any case – in English.

**Appendix III** lists all documents collected, as produced during the making of the 2011 Transport White Paper. It also lists the documents analysed, of the collected documents. Documents are listed by clusters of formal steps (as outlined hereinafter).

Ultimately, I analysed 144 documents, totalling 2085 pages.

### 3.5. Instrument mixes, coalitions and policy narratives

In this thesis, I – as noted above – use the part of the coding frame relating to the main category ‘II. solutions’ for the identification of **instrument mixes for transitions**.

I, therefore, use the coding frame to assess the extent to which the policy outcome (the 2011 Transport White Paper) (Commission 2011 - 1) shows an instrument mix for transitions, the extent to which that mix is encompassing and balanced. To recall – for the purposes of this thesis – I define ‘policy instrument mixes for transitions’ as instrument mixes that **(1)** encompass ‘traditional’ destructive policy instruments, as well as ‘novel’ creative instruments and ‘novel’ instruments addressing the use of societal services or rather the final consumption, as well as that **(2)** are balanced across those instrument types.

‘Balance’ is here assessed in relation to how frequently the relevant subcategories or rather the different instrument types are mentioned. Frequency is, in turn, assessed in relation to the units of coding. I – then, also – differentiate between ‘fully-fledged’ and ‘tentative’ instrument mixes. ‘Fully-fledged’ instrument mixes in this case meet criteria (1) and (2), while ‘tentative’ instrument mixes only meet criterion (1) but not criterion (2).

In this thesis, I – as also noted above – define a **coalition** as actors sharing the content of the narrative element solution only.

The thesis differentiates between coalitions of actors putting forward specific traditional solutions on the one hand (‘traditional coalitions’), and coalitions of actors putting forward at least one specific type of novel solution on the other hand (‘novel coalitions’).

I identify such coalitions for each of the ‘policy work instances’. And, I identify such policy work instances throughout the making of the 2011 Transport White Paper – based on the formal EU policy-making process and the Commission’s specific practices, as well as taking into account the discussions regarding these (as outlined hereinafter).

I, then, identify traditional coalitions in relation to ‘groups’ of traditional solutions. I, however, identify novel coalitions in relation to individual novel solutions. For traditional coalitions, I identify six groups of traditional solutions on the basis of the above overview of such transitional solutions – subsidies to R&D; fuel standards or vehicle standards; restrictions; vehicles taxes or vehicle subsidies; infrastructure subsidies with standards or other subsidies; usage taxes (in general, as well

as transport taxes, fuel taxes, tolls, distance driven or time based tax, carbon tax and emissions trading). I, importantly, only identify coalitions of actors sharing a single group of traditional solutions on the one hand, as well as coalitions of actors sharing the most groups of traditional solutions on the other hand (for a given policy work instance). This course of action limits the amount of coalitions identified (and subject to further analysis). At the same time, this course of action still accounts for the variation in the sharing of traditional solutions. It covers both ends of the 'continuum' in the sharing of such solutions – continuum from one group of traditional solutions shared, to some groups of traditional solutions shared, to several groups or all groups of traditional solutions shared. The analysis is here restricted, to account for the only limited resources available for analysis.

It is, finally, important to note that actors could put forward both traditional solutions and novel solutions. They could thus also simultaneously be members of a traditional coalition and of a novel coalition. I identify such overlaps.

I – subsequently, as also noted above – identify the transition **policy narratives** put forward by those coalitions, or – in the absence of such coalitions – put forward by actors, in the context of a specific policy work instance.

This thesis considers a minimum of two narrative elements – solution and any other element – as required for constituting a policy narrative. In other words, a 'combination' of two or more narrative elements – solution and any other element(s) – is required for constituting a policy narrative. In doing so, I focus on the broader intercoalition differences in the policy narratives. I do not address the finer intracoalitional cohesion to variation in policy narratives between members of the same coalition.

Moreover, I also identify policy narratives put forward by individual actors putting forward novel solutions outside of coalitions, even if novel coalitions are present (in a given policy work instance). This course of action recognizes that such novel solutions are probably of minor importance and that novel coalitions can therefore also be expected to be less prevalent.

For identifying the policy narratives, I address the possible narrative elements other than solutions ('II. solutions'). I, initially, address how the solutions are substantiated – 'IV. evidence'. I, then, address how the solutions and the evidence are communicated. Including by putting forward issues that the solutions (desired) are to address – 'I. problems'. Also including by discussing solutions

(desired and undesired) and/or the substantiation of solutions (desired) – ‘V. setting’. And, including by putting forward undesired solutions, and by discussing solutions (desired and undesired) in relation to actors – ‘III. characters’.

The narratives might then show a grounding of traditional environmental economics-based or of novel innovation studies-based and novel SPT-based solutions, complemented by traditional or novel ‘realisations’ of other narrative elements. Those realisations of other narrative elements include traditional environmental economics-based, as well as novel innovation studies-based and novel SPT-based evidence. Those realisations of other narrative elements, in addition, include traditional ‘mobility too inefficient’ as well as novel ‘mobility demand too high’ problems.

For identifying the policy narratives, I – in addition – address the possible narrative strategies.

As noted above, the thesis considers the narrative strategies that NPF scholars have referred to most. In doing so, it in particular focuses on the strategies ‘containment’ and ‘expansion’.

And, in identifying the narrative strategies, I consider the substantiation of solutions as well as the communication of solutions and of evidence – in particular ‘V. setting’ and ‘III. characters’.

### 3.6. Policy work instances

In this thesis, I – as noted above – analyse the context and the interactive processes with a focus on the context aspect of political epistemologies, and in relation to policy work accounts. The thesis does so in relation to the policy work accounts defined for the purposes of this thesis – which are summarised in **Appendix I**.

That summary also outlines empirical evidence which would unequivocally confirm – or would at least clearly suggest – a certain policy work account. In other words, the summary also includes – drawing on process tracing literature (as outlined hereinafter) – ‘sufficient’ and ‘necessary’ evidence or rather ‘empirical fingerprints’ for the different policy work accounts. Empirical fingerprints are, in this case, predictions regarding empirical observations, and the researcher “then attempt[s] to observe whether the posited fingerprints are actually present in the ...empirical record” (Beach and Pedersen 2019: 155-156).

For this thesis, I firstly explore the formal EU policy-making process involving the Commission. Formal process, in this case, corresponds to the formal institutions aspect of context. I secondly explore EU policy-making practices, the Commission’s practices. Practices, in this case, correspond to the informal rules aspect of context. And, I analyse those practices in relation to the policy work accounts. Moreover, the exploration of the practices, here, takes into account the exploration of the formal process of EU policy-making,

I thirdly explore the Commission’s specific practices for the making of the 2011 Transport White Paper. Practices, in this case, again correspond to the informal rules aspect of context. And, I again analyse those practices in relation to the policy work accounts. Moreover, the exploration of the specific practices – here – takes into account the above exploration of the formal process of EU policy-making, and the above exploration of the associated general EU policy-making practices.

In exploring the Commission’s specific practices for the making of the 2011 Transport White Paper, I also consider discussions regarding the making of that White Paper. Discussions, in this case, correspond to interactive processes regarding the context (or regarding a specific aspect of context). To recall, I consider those interactive processes separately from the interactive processes regarding the policy conflict.

I, importantly, identify those discussions using qualitative content analysis, and within the coding frame set out above (main category ‘V. setting’). In this case, discussions include the description

and identification of aims regarding formal process and practices (subcategory 'V.i. reflection'). And, discussions include critique of the past formal process and practices, as well as desired future formal process and practices (subcategory 'V.ii. critique'). I – then, again – analyse those discussions in relation to the policy work accounts.

I ultimately identify different 'policy work instances' throughout the making of the 2011 Transport White Paper. I, here, define a 'policy work instance' as **(1)** specific formal step(s), as well as **(2)** associated specific practices.

I – then, importantly – differentiate policy work instances in terms of the empirical fingerprints detected – 'traditional policy work instances' **and** 'novel policy work instances' (with fingerprints corresponding to the 'traditional' authoritative choice account or structured interaction account or rather 'traditional fingerprints' detected, **as well as** fingerprints corresponding to the 'novel' social construction accounts or rather 'novel fingerprints' detected<sup>19</sup>). That differentiation between traditional and novel policy work accounts is, in this case, based on the past development of critical policy studies, from the authoritative choice account, to the structured interaction account and to the social construction accounts – as outlined above.

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At least partially.

### 3.7. Causal inference through process tracing

For this thesis, I – as noted above – conduct content analysis of the relevant documents, with subsequent qualitative data analysis of the data gathered. I conduct such qualitative data analysis of the data gathered in content analysis by making ‘causal inference’ through ‘process tracing’. Making causal inference ultimately allows assessing the extent of the influence of the narratives deployed by actors and/or coalitions during the making of the 2011 Transport White Paper on the policy outcome (the White Paper), and allows analysing the extent to which the policy-making context shapes those narratives.

“Causal inference” goes beyond “descriptive inference” (Collier 2011: 824-826).

Descriptive inference is, on the one hand, made through the “congruence method” investigating “correlations” between an independent variable and a dependent variable (Beach and Pedersen 2013: 4). Causal inference, on the other hand, is made through process tracing (Beach and Pedersen 2013: 4-5). In this case, “process-tracing methods go beyond correlations by attempting to trace the theoretical causal mechanisms(s) linking” the independent variable and the dependent variable (ibid.). Process tracing addresses specific shortcomings of the congruence method. The congruence method is “fraught with problems of causal interpretations such as omitted variable-bias and equifinality” (Schimmelfennig 2015: 101). “Equifinality” refers to a situation in which the same outcome is produced through different processes (Bennett and Checkel 2015: 4).

Process tracing is, consequently, an “important [qualitative] method” for case studies or “within-case analysis” (Kay and Baker 2015: 1; Collier 2011: 823). In this case, process tracing “can help the analyst to determine whether a correlation between two variables is causal and not a spurious correlation resulting from the presence of an antecedent variable [or omitted variable]” (Kay and Baker 2015: 5-6). And, “single, within-case CPT [“causal process tracing”] stud[ies] ... address ... the external validity by reference to the importance of a common theoretical framework [or causal mechanism]” (Kay and Baker 2015: 5).

Process tracing scholars have, then, defined ‘variables’ and ‘causal mechanisms’ in a specific manner.

For the congruence method variables are typically defined as a “continuum”, from a “positive pole” to a “negative pole” (Beach and Pedersen 2013: 47). For process tracing, defining such a continuum

is, however, “superfluous” (Beach and Pedersen 2013: 48). Rather, it is sufficient to define variables as the presence or absence of a “concept” (Beach and Pedersen 2013: 47).

Moreover, scholars define causal mechanisms as “entities that undertake activities” (Beach and Pedersen 2013: 29). The activities “transmit causal forces” from the independent variable to the dependent variable (Beach and Pedersen 2013: 39). In this case, “entities can be individual persons, groups, states, classes, or structural phenomena” (Beach and Pedersen 2013: 49). And, entities have “causal powers” – “the capacity to produce a certain kind of outcome”, under certain conditions (Beach and Pedersen 2013: 50; Bennett and Checkel 2015: 12; Schimmelfennig 2015: 106).

Process tracing scholars have, subsequently, identified different types of process tracing, and set out what these entail.

Scholars have identified “theory building” process tracing and “theory testing” process tracing (Vanhala 2017: 91; Beach and Pedersen 2013: 11-21). Theory building process tracing is inductive, with “a theory about a causal mechanism” being developed (Beach and Pedersen 2013: 11). And, theory testing process tracing is deductive, with assessment of evidence for a single “hypothesised causal mechanism” (ibid.).

For theory testing process tracing, researchers operationalise a relevant “theory about a causal mechanism”, by “translating theoretical expectations into ... predictions of what observable manifestations each of the parts of the mechanism should have” (Beach and Pedersen 2013: 14 and 33; Bennett and Checkel 2015: 18). More specifically, researchers set out empirical fingerprints, predictions regarding empirical observations. And, the researcher “then attempt[s] to observe [empirical observations] whether the posited fingerprints are actually present in the ...empirical record” (Beach and Pedersen 2019: 155-156).

Process tracing scholars, then, differentiate between the “uniqueness of evidence”, as well as the “certainty of evidence” (Beach 2017: 12). Uniqueness refers to “whether there are any plausible alternatives for finding the particular empirical material” (ibid.). And, certainty entails “that the prediction ... must be observed” (Beach and Pedersen 2013: 101).<sup>20</sup> Researchers are to assess and

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Process tracing scholars similarly differentiate between “confirmatory power”, as well as “disconfirmatory power” (Beach and Pedersen 2013: 103). Moreover, scholars similarly refer to “sufficient” evidence, as well as “necessary” evidence (Collier 2011: 825).

maximise the uniqueness and certainty of evidence (Beach and Pedersen 2013: 104 and 33; Beach 2017: 13).

For theory testing process tracing, Beach and Pedersen (2019) have, also, noted that “theoretical uniqueness relates to the plausibility of alternative explanations [or “any plausible explanation”] for finding mechanistic evidence” (Beach and Pedersen 2019: 191). And, they have noted that “theoretical certainty means that the predicted empirical fingerprint must be observed; otherwise, the empirical test disconfirms the existence of the part of the mechanism” (190).

Process tracing is an appropriate method for this thesis, as the thesis is based on a single case study, the making of the 2011 Transport White Paper (Commission 2011 - 1). I, then, engage in theory testing process tracing. The theory about the causal mechanism is, in this case, the theoretical framework developed for this thesis – with NPF constituting the basis of the theoretical framework.

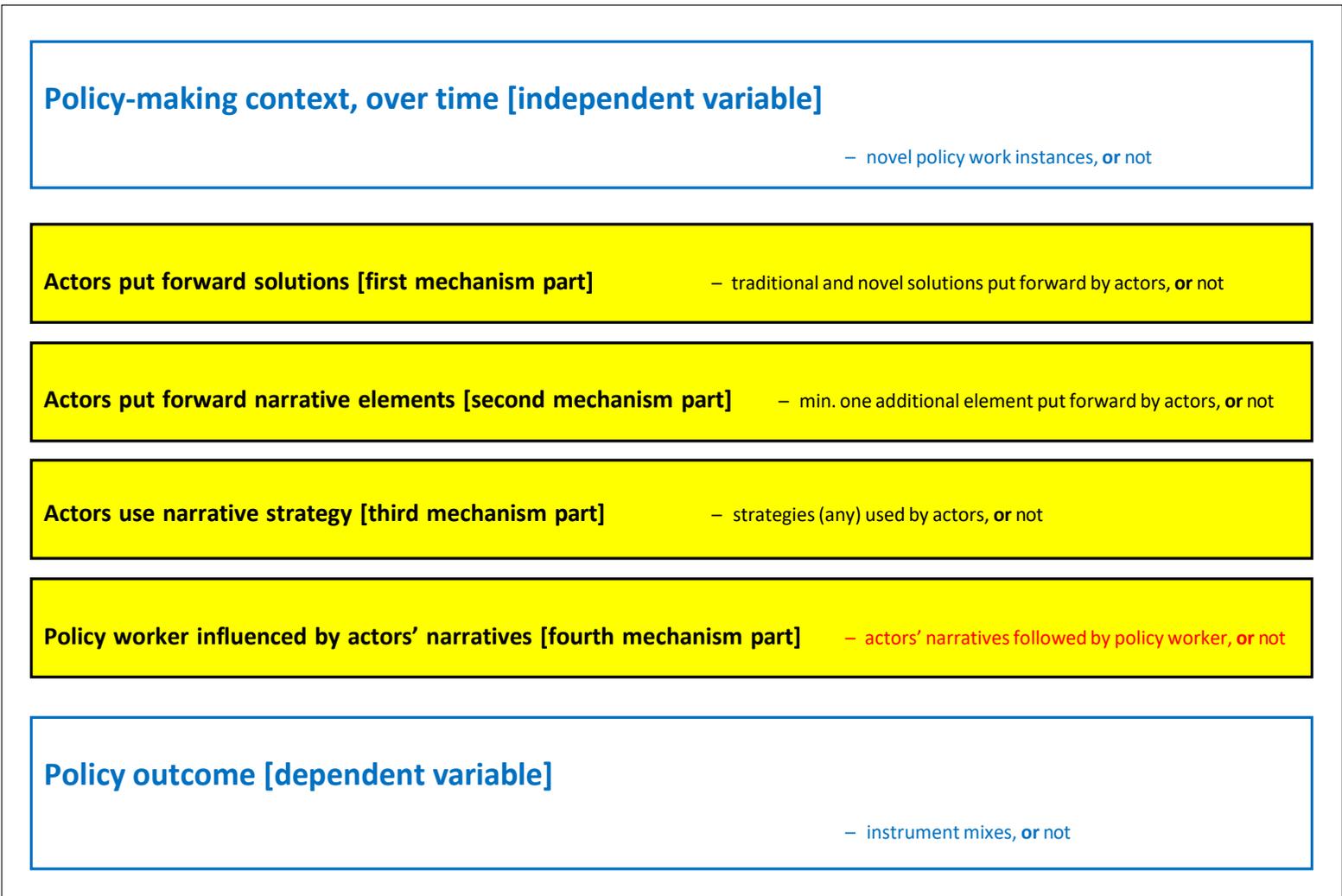
I, consequently, set context as independent variable (policy-making context, over time) and policy outcome (the 2011 Transport White Paper) as dependent variable, as well as the deployment of transition policy narratives as causal mechanism acting between the independent and the dependent variable.

**Figure 3.1.** and **Figure 3.2.** summarise the variables and the different parts of the causal mechanism. The figures do so for the deployment of policy narratives by actors on the one hand (**Figure 3.1.**), as well as for the deployment of policy narratives by coalitions on the other hand (**Figure 3.2.**). This differentiation reflects the fact that I consider individual actors outside of coalitions, whenever such coalitions are absent.

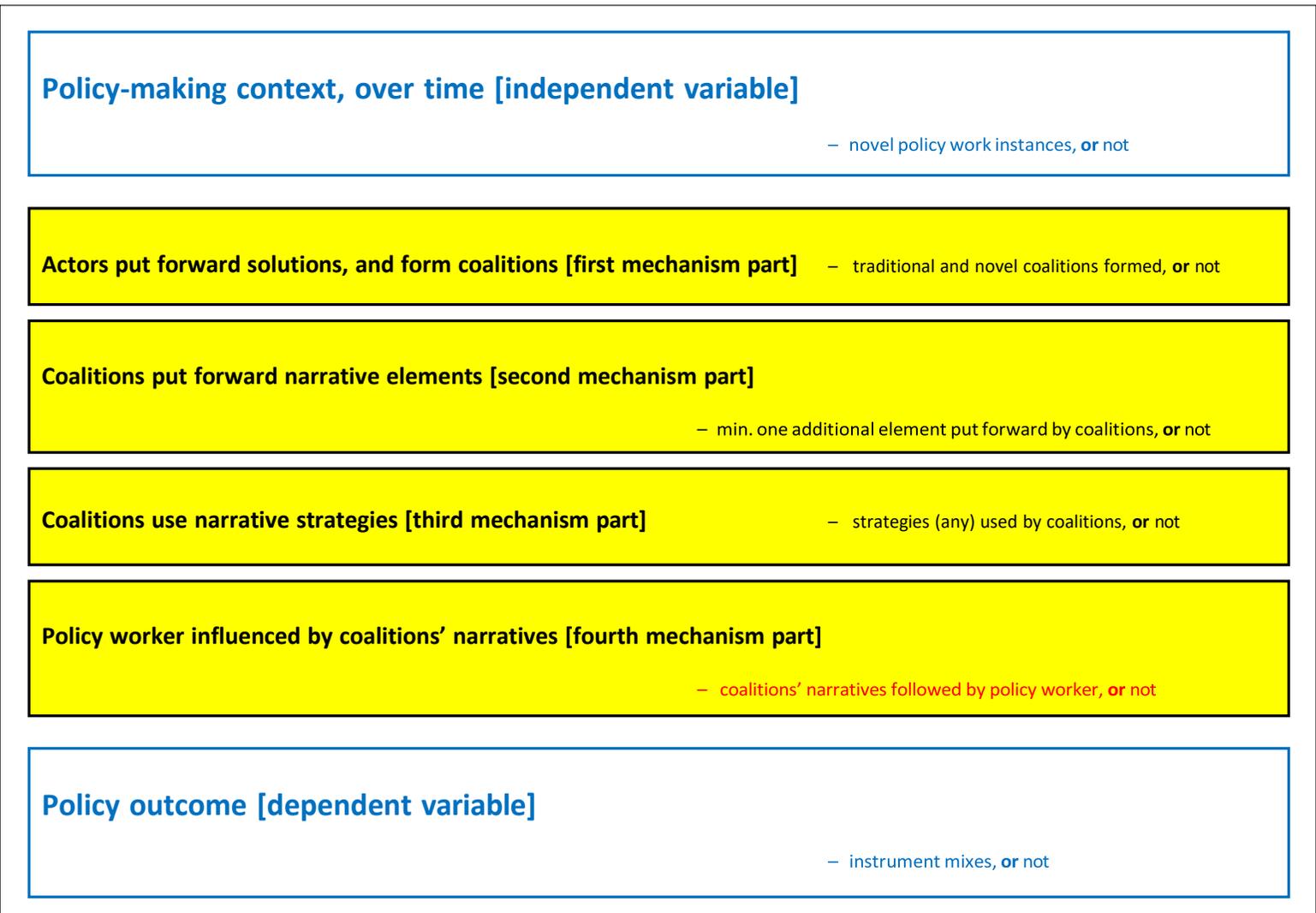
Moreover, the figures set out the associated empirical fingerprints. Those are – as stipulated by the process tracing literature – defined as the presence or absence of concepts. In addition, I differentiate between sufficient and necessary empirical fingerprints for the causal mechanism parts. Such fingerprints, in this case, unequivocally confirm or clearly suggest the presence of or rather acting of the causal mechanism – i.e. the deployment of transition policy narratives.

It is worth noting here, that those the figures are, inter alia, based on an example of a process tracing study – a process tracing study that explored the “epistemic communities’ influence on policy” (Beach and Pedersen 2019: 262).

Ultimately, I conduct process tracing regarding the making of the 2011 Transport White Paper on the basis of the above figures. Process tracing, in this case, entails going through the data gathered through content analysis and then attempting to identify the empirical fingerprints, as set out in those figures.



**Figure 3.1. Variables and causal mechanism parts, for actors.** With empirical fingerprints for these (after the hyphens). With sufficient fingerprints in red, and necessary fingerprints in blue or black.



**Figure 3.2. Variables and causal mechanism parts, for coalitions.** With empirical fingerprints for these (after the hyphens). With sufficient fingerprints in **red**, and necessary fingerprints in blue or black.

## Chapter 4 – EU policy-making

### 4.1. EU policy-making involving the Commission

In this chapter I outline the formal process of EU policy-making involving the Commission. I also outline the associated EU policy-making practices, the Commission's practices.

In exploring EU policy-making I draw on the primary sources, as well as draw on the relevant 'EU studies' literature.

EU policy-making has been subject to continuous adjustments – due to recurring EU treaty changes and recurring Commission reforms. This poses a challenge to exploring EU policy-making. I address this challenge by focusing on the status quo<sup>21</sup> – and whenever useful outlining the recent reforms and changes that have led to the status quo<sup>22</sup>.

I, ultimately, analyse the Commission's practices in relation to the policy work accounts. In doing so, I attempt to detect empirical fingerprints corresponding to the policy work accounts – including fingerprints corresponding to the 'traditional' authoritative choice account or structured interaction account or rather 'traditional fingerprints', as well as fingerprints corresponding to the 'novel' social construction accounts or rather 'novel fingerprints'. In addition, I – in doing so – in particular focus on (sufficient) novel fingerprints. That focus takes into account that – for the purposes of the process tracing conducted for this thesis – I set 'novel policy work account, or not' as empirical fingerprint for the independent variable (policy-making context, over time).

As regards the relevant EU studies literature, I draw on the EU studies literature that sees the Commission as an "organisation", rather than on the literature that sees the Commission as an "actor" (Nugent and Rhinard 2015: 5-6; Hartlapp et al. 2014: 5-6).

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I.e. the "Juncker" Commission (2014 to 2019) (EU 2020), in office at the time of the analysis.

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I.e. from 2004 to 2014 – from start of the 'Barroso I' Commission (2004 to 2009), to the end of the 'Barroso II' Commission (2010 to 2014) (EU 2020).

The perspective seeing the Commission as an actor has, in this case, traditionally been dominant in EU studies.<sup>23</sup> The perspective seeing the Commission as an organisation has more recently emerged in EU studies.

Under the perspective seeing the Commission as an organisation, the Commission is no longer seen as a unique international actor (Hustedt and Seyfried 2016: 888). Rather, the Commission is considered as a “regular core executive” or as a “normalized executive” (Wille 2013: 186 and 195-196). This perspective has also been referred to as the “administrative turn” or the “public administration turn” in EU studies (Hustedt and Seyfried 2016: 888; Cini 2015: 131). EU studies scholars or ‘EU scholars’ have, then, studied the “organizational structure” of the Commission, as well as the process of “position formation” in the Commission (Hustedt and Seyfried 2016: 889; Nugent and Rhinard 2015: 6). EU scholars have also studied the “bureaucratic-administrative practices” of the Commission or the “culture” of the Commission (Nugent and Rhinard 2015: 6).

The thesis, thus, draws on the EU studies literature that sees the Commission as an organisation. It is, in this case, more appropriate for the thesis to draw on that perspective, due to this perspective’s focus on the bureaucratic-administrative practices.

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According to this perspective, the Commission is a unique international actor (Hustedt and Seyfried 2016: 888). Its role as unique actors is, then, considered in relation to the “integration theories” (Nugent and Rhinard 2015: 5; Hartlapp et al. 2014: 5). According to “intergovernmentalism”, the Commission is “an agent of the governments of the member states”, allowing cooperation between the MSs (Nugent and Rhinard 2015: 5-6; Hustedt et al. 2014: 38). According to “supranationalism” or “neo-functionalism”, the Commission is to “guide” and “lead” the MSs, it is considered as “political entrepreneur” (Nugent and Rhinard 2015: 6; Hustedt et al. 2014: 38-39). EU scholars have also more ‘modestly’ considered the Commission still as an actor, but not in relation to the integration theories (Nugent and Rhinard 2015: 6).

## 4.2. Overall policy-making process and principles

EU scholars have differentiated between two levels in the Commission – a “political level” and an “administrative level” (Hartlapp et al. 2014: 15). The political level of the Commission comprises “the [Commission] President as well as the Commissioners ... including their personal cabinets” (ibid.). The President and the Commissioners are, in this case, collectively referred to as “Commission” or as “College” (EU 2016 - 2: Article 17(5); Nugent and Rhinard 2015: 96). The administrative level of the Commission comprises “the DGs [Directorates-General], each headed by a Director-General” (Hartlapp et al. 2014: 15). Most DGs cover certain “policy-specific issues”, following a “specialization logic” (Nugent and Rhinard 2015: 167; Hartlapp et al. 2014: 16).<sup>24</sup> Some DGs provide “horizontal services” (ibid.). This includes the “Secretariat-General”, the “secretariat of the Commission” (Nugent and Rhinard 2015: 181). The administrative level of the Commission is also referred to as the “services” (Nugent and Rhinard 2015: 167).

The differentiation between the political level and the administrative level of the Commission is a hierarchical differentiation. The TEU (“Treaty on European Union”) (Article 17) and the TFEU (“Treaty on the Functioning of the European Union”) (Articles 244-250) reflect this hierarchy by exclusively addressing the political level (EU 2016 - 2; EU 2016 - 1). And, the “Rules of Procedure of the Commission” (Commission 2011 - 4) reflect this hierarchy by first addressing the political level (Chapter I), then addressing the administrative level (Chapter II). At the same time, the differentiation between the political level and the administrative level of the Commission is a differentiation along the “politics-administration nexus”, or along the politics-administration continuum (Cini 2015: 129). “Commissioners are expected to bring political vision and authority by mobilizing political support, whereas the key functions of bureaucrats are believed to be management and delivering policy proposals” (Wille 2013: 158). And, “the key function of heads of cabinets relates to fostering horizontal coordination, communication, brokering, and the monitoring of the policy process” (Wille 2013: 158).

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The number of DGs has increased over time (Nugent and Rhinard 2015: 168). This can be explained by EU treaty changes, expanding the EU’s “competences” (ibid.). This can also be explained by the EU’s enlargements leading to an increase in the number of Commissioners or the size of the College – so as to also allocate relevant positions to the new MSs – and the need to give these Commissioners responsibility over DGs (Nugent and Rhinard 2015: 169).

The policy-making process begins with **planning processes** – planning processes both at the political level of the Commission, as well as at the administrative level of the Commission.

At the political level of the Commission, the President of the Commission sets “policy objectives” for the five-year term of the Commission, so-called “Political Guidelines” (EU 2016 - 2: Article 17(3) and Article 17(6); Nugent and Rhinard 2015: 292). Moreover, those “guidelines are [then] translated annually into concrete deliverables in the Commission Work Programme” by the College (Commission 2017 - 1: 6; Commission 2011 - 4: Article 2; Nugent and Rhinard 2015: 293). Both the Political Guidelines and the Commission Work Programme are prepared with input from the services or rather the DGs (Nugent and Rhinard 2015: 292-293). At the administrative level of the Commission, every DG then translates the five-year Political Guidelines and the annual Commission Work Programme into “Strategic Plans” and “Management Plans” respectively (Commission 2017 - 1: 6; Nugent and Rhinard 2015: 293). Those set out “specific activities”, and are prepared with input from the Cabinets, and “under the watchful eye of the Secretariat-General” (Nugent and Rhinard 2015: 293).

The policy-making process, then, continues with the **realisation of the planned activities**.

Following the specialization logic, the DG with the most relevant specialization is responsible for the elaboration of a given policy initiative – this is the “lead DG” (Nugent and Rhinard 2015: 294). In elaborating the policy initiatives, the lead DG is to apply the “better regulation principles” (Commission 2017 - 2: 3-4).

Better regulation “means designing EU policies ... so that they achieve their objectives at minimum cost” (Commission 2017 - 2: 4; Commission 2015 - 1: 4-7). And, it means “a way of working to ensure that political decisions are prepared in an open, transparent manner, informed by the best available evidence and backed by the comprehensive involvement of stakeholders” (ibid.). Better regulation also means “ensur[ing] ... respect [of the] overarching principles of subsidiarity and proportionality i.e. acting only where necessary at EU level and in a way that does not go beyond what is needed to resolve the problem” (Commission 2017 - 2: 4; Commission 2015 - 1: 5). Those principles are set out in the treaties (EU 2016 - 2: Article 5 and Protocol No 2).

The overarching principle of subsidiarity, in this case, addresses the relation between the EU level on the one hand, and the MS level on the other hand – including the “central level”, the “regional level” and the “local level” [EU 2016 - 2: Article 5(3)]. The principle is then applied using two tests. It is, first, applied using the “better attainment test” – ensuring “that Union [or EU] action is

preferred to Member State action, provided it will bring demonstrable advantages” (Humphreys 2018: 48-49). It is, secondly, applied using the “sufficient attainment test” – ensuring “that the EU takes action only if the Member States cannot achieve the aim ... themselves” (ibid.). Regarding the first test, subsidiarity then encompasses two “dimensions” – an “economic dimension” and a “democratic dimension” (Bartl 2015: 25). The economic dimension refers to the “the most efficient level of government for accomplishing a particular task” (ibid.). And, the democratic dimension refers to “concerns related to the proximity of decision making and the right to self-government” (ibid.). The economic dimension of subsidiarity, in practice, has stronger legal status (ibid.). Regarding the second test, it has been noted that “in matters of a transboundary nature, which encompass key environmental issues like climate change ... and pollution ... the institutions have recognised that EU-level action is more appropriate” (Humphreys 2018: 49).

Furthermore, according to the overarching principle of proportionality, “content and form of ... action shall not exceed what is necessary to achieve the objectives of the treaties” [EU 2016 - 1: Article 5(4)]. The principle can be applied in two different ways – using the “manifestly disproportionate test” and the “least restrictive means (LRM) test” (Sauter 2013: 448). The former (manifestly disproportionate test) addresses the “costs versus benefits balance”, reviewing policy initiatives in terms of the balance between “public interests” and “economic rights” (Sauter 2013: 440, 443-444 and 448). And, the latter [LRM test] reviews policy initiatives in terms of the balance between “public interests” and “broader individual rights” (ibid.). These rights are set out in the “Charter of Fundamental Rights of the European Union” (EU 2016 - 3). These rights include the right to “environmental protection” that refers to “sustainable development” (EU 2016 - 3: Article 37; Humphreys 2018: 44). The manifestly disproportionate test is, in practice, considered appropriate with regard to EU policy (Sauter 2013: 449-452). And, “the EU may not be ready for full proportionality testing [i.e. applying the LRM test] and its constitution may not be developed to the point where such testing is feasible” (Sauter 2013: 465). Moreover, it has been noted that some of the rights – including the right to environmental protection referring to sustainable development – are not “enforceable” (EU 2016 - 3: Article 52(5) and Article 37; Humphreys 2018: 46).

The application of the better regulation principles by the lead DG, then, occurs through the **formal process of IA** (Commission 2017 - 2: 15).

Moreover, a given policy initiative is likely to also fall in the remit of other DGs (aside from the lead DG), at least to a certain extent. The Rules of Procedure of the Commission, thus, require the lead DG to “ensure from the beginning of the preparatory work that there is effective coordination between all the departments with a legitimate interest in the initiative by virtue of their powers or

responsibilities or the nature of the subject” (Commission 2011 - 4: Article 23(2) and Article 23(3); Hustedt and Seyfried 2016: 893). Moreover, the lead DG is to consult certain horizontal DGs – the Secretariat-General and the “Legal Service” (Commission 2011 - 4: Article 23(5) and Article 23(4); Hustedt and Seyfried 2016: 893).

Coordination between the lead DG and other DGs (including the horizontal DGs), here, occurs through **formal process of “Inter-Service Consultation”** (ISC) (Commission 2014: 7; Hustedt and Seyfried 2016: 892; Nugent and Rhinard 2015: 297).

For this thesis, I – then – only consider the realisation of the planned activities, not the planning processes. This is appropriate as this thesis explores the making of the 2011 Transport White Paper (Commission 2011 - 1) – a policy initiative that was in any case scheduled. Indeed, Transport White Papers have been published regularly, roughly every ten years since 1992 – in 2001, in 2011, and at the end of 2020 (Commission 1992; Commission 2001 - 1; Commission 2011 - 1; Commission 2020 - 1).

And – as regards the realisation of the planned activities – this thesis considers both the formal process of IA, as well as the formal process of ISC with subsequent adoption. I address those processes hereinafter.

### 4.3. Impact Assessment

In this section, I outline the formal process of IA. I also consider the Commission's practices associated with this formal process. Those practices are, to recall, analysed in relation to the policy work accounts.

In terms of primary sources, I mainly refer to the most recent guidelines on IA – as set out in the “Better Regulation Guidelines” (Commission 2017 - 3), as well as set out in the “Better Regulation Toolbox” “complementing” these Guidelines (Commission 2017 - 4).

As regards the formal IA process, **firstly**, the foundations for the IA are laid.

The lead DG and the Secretariat-General put together a “Roadmap” or an “Inception Impact Assessment” (Commission 2017 - 4: 41; Commission 2017 - 3: 15). A Roadmap is prepared when an IA is not required, and an Inception IA is prepared when an IA is required. The latter is essentially a more detailed version of the former (Commission 2017 - 3: 7). An Inception IA briefly addresses the problem, subsidiarity, policy objectives and policy options, as well as the impacts of the policy options (*ibid.*). The Inception IA also sets out “foreseen impact assessment work and consultation of stakeholders” (Commission 2017 - 3: 15). An IA is required for “initiatives that are likely to have significant economic, environmental or social impacts” (Commission 2017 - 3: 15). This includes “impacts on the economy or society as a whole, but also for initiatives likely to have a significant impact on a particular economic sector, type of economic actor ... , societal group or geographical area or environmental compartment” (Commission 2017 - 4: 48). More specifically, for strategies – for “White Papers” or for “Communications” – an IA is required when these set out “binding” and “ambitious” “commitments” (Commission 2017 - 4: 49). The Roadmap or the Inception IA are then published online. This allows stakeholders to provide feedback on these over a four-week consultation period (Commission 2017 - 3: 16; Commission 2017 - 4: 41).

The distinction between a Roadmap and an Inception Impact Assessment is recent. The previous IA guidelines from 2009 (Commission 2009 - 1; Renda 2016: 307-315) only provided for Roadmaps (7-8). This suggests that for initiatives that now do require an IA, this first part of the IA process has become more substantial. Moreover, the previous IA guidelines from 2009 (Commission 2009 - 1) only stated that stakeholders should be “encouraged” to give feedback at this stage (19). This suggests that the consultation of stakeholders in this part of the IA process has become more formalised.

In what follows, I only consider the IA process for initiatives that require an IA. This takes into account that the 2011 Transport White Paper (Commission 2011 - 1) was considered to be a policy initiative that required an IA.

**Secondly**, the actual IA is prepared.

The IA or the “IA Report” is prepared by the lead DG (Commission 2017 - 4: 44; Melloni 2013: 11). The lead DG prepares the IA Report together with an “Interservice Group” (ISG) created for each IA process (Commission 2017 - 3: 42). The ISG is to be composed of representatives of DGs with an interest in the initiative, as well as representatives of the Secretariat-General and of the Legal Service (Commission 2017 - 4: 43-44). The ISG is chaired by the Secretariat-General for “important initiatives” and by the lead DG for other initiatives (Commission 2017 - 4: 43). The chair invites the relevant DGs to participate in the ISG (Commission 2017 - 4: 44). The ISG should here build on existing and permanent “inter-service groups” that exist in the Commission (Commission 2017 - 4: 44; Nugent and Rhinard 2015: 296).

The preparation of the IA Report, in this case, comprises “the collection and analysis of relevant data and expertise, foresight and consultation of stakeholders including consideration of any feedback from stakeholders on the inception IA” (Commission 2017 - 4: 42). In this case, “stakeholders must be consulted on all IA elements in the IA process” (Commission 2017 - 3: 16 and 76; Commission 2017 - 4: 383). For this purpose, the lead DG develops a “consultation strategy” (Commission 2017 - 3: 72-81). This strategy is “finalised and endorsed” by the ISG (Commission 2017 - 3: 72). The IA Report is to, then, answer the following questions: “What is the problem and how is it a problem?”; “Why should the EU act?”; “What should be achieved?”; “What are the various options to achieve the objectives?”; “What are the impacts of the different policy options and who will be affected?”; and “How do the different options compare (effectiveness, efficiency and coherence)?”. The IA Report is to – then, importantly – set out “the preferred option” (Commission 2017 - 3: 17; Commission 2017 - 4: 64-72). In addition, the IA Report is to provide an overview of how the IA Report was prepared (Commission 2017 - 4: 64-76).

The previous IA guidelines from 2009 (Commission 2009 - 1) broadly referred to a “consultation plan” (19), but did not refer to a consultation strategy – with specific elements, and with particular links between these. This suggests that the consultation of stakeholders in this part of the IA process has become more formalised. Moreover, the previous IA guidelines from 2009 (Commission 2009 - 1) referred to the “Impact Assessment Steering Group” (IASG), rather than to the ISG. This suggests that there is now a closer link between the ad-hoc inter-service groups created for the IA process, as well as the permanent inter-service groups. And, previously the Secretariat-General participated

in the IASG meetings, but did not chair these (Commission 2009 - 1: 8-9). Now the ISG is chaired by the Secretariat-General for important initiatives (Commission 2017 - 4: 43). This suggests that there is now a greater involvement of the Secretariat-General. In fact, EU scholars have noted that the role of the Secretariat-General in EU policy-making has been strengthened through the IA process (Radaelli and Meuwese 2010: 148; Kassim et al. 2013: 192).

**Thirdly**, the IA is reviewed.

The so-called “Regulatory Scrutiny Board” (RSB) reviews the IA Report (Commission 2017 - 3: 16). The RSB is composed of a chair and six members. The chair and three members are high-ranking Commission officials, and three members are outside experts. All members are independent, working full-time as members of the RSB (Commission 2017 - 4: 12; Commission 2015 - 2: 3).

Following the review, the RSB rejects or approves the IA Report. Approvals of an IA Report are either accompanied by “recommendations for improvement” (“positive opinion”), or by “required adjustments to address important deficiencies” (“positive opinion with reservations”) (Commission 2017 - 4: 15-16). The IA Report is to be revised based on the recommendations or on the required adjustments of the RSB (Commission 2017 - 3: 16). The IA Report is to state how the recommendations or required adjustments have been addressed (Commission 2017 - 4: 43). Ultimately the RSB is to approve the IA Report (Commission 2014: 7).

The previous IA guidelines from 2009 (Commission 2009 - 1) referred to the “Impact Assessment Board” (IAB), rather than to the RSB (10). The RSB was in fact only established in 2015 (Commission 2015 - 3). All members of the IAB were Commission officials, with the chair was the Deputy Secretary-General. And, these members were “broadly chosen to reflect the main categories of impacts” (Commission 2009 - 1: Footnote 7; Radaelli and Meuwese 2010: 147; Melloni 2013: 11). The change from IAB to RSB aimed at “strengthening the independence of this body” (Renda 2016: 315).

As regards the Commission’s practices associated with the formal IA process, EU scholars have explored different “objectives” of IA or different “usages” of IA (Bäcklund 2009; Dunlop et al. 2012). Scholars have, **firstly**, observed that the objective of IA is to “provide accurate estimates of impacts” or they have observed “instrumental usage” of IA (Bäcklund 2009: 1080-1081; Dunlop et al. 2012: 34-35). Here, I detect the empirical fingerprint ‘selection of one research actor only’ (“accurate estimates”) – this corresponds to the policy work account authoritative choice account (sufficient fingerprint). This IA practice has been associated with low “pressure” from the Commission’s

political level (Bäcklund 2009: 1081). Moreover, it has been associated with sufficient “time for analysis” (Dunlop et al. 2012: 35).

Scholars have, **secondly**, observed that the objective of IA is to “serve as a communication ... tool” or they have observed “communicative usage” of IA (Bäcklund 2009: 1082-1083; Dunlop et al. 2012: 35). This IA practice can entail “balancing arguments and analysis”, or it can entail “ma[king] the lines of conflict clearer and therefore more manageable” (Dunlop et al. 2012: 35). Here, I detect the empirical fingerprints ‘dialogue’ or ‘conflict’ (“balancing arguments and analysis” and “ma[king] lines of conflict clearer”) – these correspond to the deliberate social construction account, or to the conflictual social construction account (necessary fingerprints). This IA practice has been associated with situations in which the “question or policy area to be assessed is rather new” (Bäcklund 2009: 1083). It has also been associated with “early” and “intense” IA (ibid.).

Scholars have, **thirdly**, observed “political usage” of IA (Dunlop et al. 2012: 31-34). The IA practice has been associated with “pre-defined” “policy choices” (Dunlop and Radaelli 2015: 30-31; Dunlop et al. 2012: 34). The IA practice has, in some cases, also been associated with more superficial IA in order to ensure the “control” over the outcome (Bäcklund 2009: 1080-1081; Dunlop et al. 2012: 35-36). The practice has, in other cases, been associated with more thorough IA (Dunlop and Radaelli 2015: 30-31). With this providing “richer and more robust” “evidence supporting the decision” (Dunlop and Radaelli 2015: 31).

#### 4.4. Consultation

In what follows, I explore a specific aspect of the formal IA process and the associated practices – consultation. Those practices are, to recall, analysed in relation to the policy work accounts.

In terms of primary sources, I again refer to the most recent IA guidelines – as set out in the “Better Regulation Guidelines” (Commission 2017 - 3), as well as in the “Better Regulation Toolbox”, “complementing” these Guidelines (Commission 2017 - 4). In addition, I refer to specific guidelines regarding “expertise” and “expert groups”, as well as guidelines regarding “consultation” (Commission 2002 - 1; Commission 2002 - 2; Commission 2005; Commission 2016).

As regards the formal consultation process, the lead DG consults during the preparation of the IA Report, and for this purpose develops a “consultation strategy” (Commission 2017 - 3: 72-81). This strategy is “finalised and endorsed” by the “Interservice Group” (ISG) (Commission 2017 - 3: 72) (as noted above, in **Section 4.3.**).

The consultation strategy is to, **firstly**, set out “consultation objectives” (Commission 2017 - 3: 74-76). These can include “to gather new ideas, collect views and opinions, gather factual information, data and knowledge; and test existing ideas and analysis” (Commission 2017 - 3: 75). More specifically, the objectives are to depend on the circumstances – on the available information from other sources, as well as on the available information from previous consultations (Commission 2017 - 3: 75).

The consultation strategy is to, **secondly**, “identify” the relevant “stakeholders” through six “tests” or through six “questions”. These include: “Who is directly impacted? ... Who is indirectly impacted? ... Who is potentially impacted? ... Whose help is needed to make it work? ... Who thinks they know about the subject? ... Who will show an interest in the subject?” (Commission 2017 - 4: 388-389).

The strategy is to then “map” the identified stakeholders in terms of their “interest”, and in terms of their “influence” (Commission 2017 - 4: 389-391). More specifically, stakeholders that can provide “specific experience, expertise or technical knowledge” are to be selected (Commission 2017 - 3: 78). And, stakeholders with “low influence and high stake” that “run the risk of being excluded” are to be selected (Commission 2017 - 4: 391; Commission 2017 - 3: 78). At the same time, a “balance and comprehensive coverage” is to be ensured (Commission 2017 - 3: 78).

The consultation strategy is to, **thirdly**, select relevant “consultation methods” or “consultation tools”. These should reflect the consultation objectives and the identified stakeholders (Commission 2017 - 3: 79). Consultation tools then include “public consultation” and “targeted

consultation” – varying in terms of the extent to which they target specific stakeholders (ibid.). The consultation tools also vary in terms of their “degree of interactivity” (Commission 2017 - 3: 79-80; Commission 2017 - 4: 395). The consultation tools then include: “public consultation ... consultation tools targeted at specific consultation groups”, as well as “stakeholder meetings, workshops, seminars ... stakeholder conferences, public hearings, broad events ... expert/focus groups” (Commission 2017 - 4: 395).

Two Commission Communications – “Communication on consultation” (Commission 2002 - 1) and “Communication on expertise” (Commission 2002 - 2) – have then provided even more specific guidance on the consultation objectives and on the identification of stakeholders.

The Communications, **firstly**, establish a “positive relationship between greater epistemic diversity ... and high quality of policy outputs” (Holst and Moodie 2015: 43). In this case, “good consultation serves a dual purpose by helping to improve the quality of the policy outcome and at the same time enhancing the involvement of interested parties and the public at large” (Commission 2002 - 1: 5). And, “the final determinant of quality is pluralism” (Commission 2002 - 2: 9). In this case, “diversity may result from differences in scientific approach, different types of expertise, different institutional affiliations, or contrasting opinions over the fundamental assumptions underlying the issue” (ibid.).

The Communications, **secondly**, identify a “trade-off” between diversity and quality (Holst and Moodie 2015: 43-44; Moodie 2016: 246-247). In this case, “too much openness could be detrimental to the quality of advice” (Commission 2002 - 2: 10). The Communications also prioritise “quality” or “effectiveness” over “diversity” or “democratisation” (Moodie 2016: 249; Quittkat and Kohler-Koch 2013: 58). In this case, “it is crucial that policy choices are based and updated on the best available knowledge” – with this “requir[ing] access to the right expertise at the right time” (Commission 2002 - 2: 1). And, “first and foremost, the decision-making process in the EU is legitimised by the elected representatives of the European peoples” (Commission 2002 - 1: 4).

As regards the Commission’s practices associated with the formal consultation process, EU scholars have in particular explored practices associated with two specific consultation tools – practices associated with ‘expert groups’ and practices associated with ‘online consultations’.

As regards **expert groups**, these are created and managed by a “parent” DG (Commission 2016: Article 4(3) and Article 13(1); Metz 2015: 61). Expert groups are either “formal” or “informal” – they are created on the basis of a “Commission Decision”, or not [Commission 2016: Article 4(1)]. The creation of informal groups requires “agreement of the responsible Commissioner and Vice-President and the Secretariat-General” [Commission 2016: Article 4(1)]. And, formal groups are the preferred choice when a group “is expected or desired to have a political impact” (Metz 2015: 62; Commission 2016: Article 4(2)). Since 2005 the Commission maintains “an online public register” of expert groups (Commission 2005: 8; Metz 2015: 56). This “register of expert groups” includes information on the composition of expert groups (Commission 2005: 8). At first, the register only included information on what categories of experts were represented in the relevant groups – but not in what proportion (Commission 2005: 8). Currently, the register includes information on the individual members of expert groups (Commission 2016: Article 23). Moreover, the categories of experts have changed over time – they have become “more accurate” [Commission 2005: 8; Commission 2016: Recital (7) and Article 7].

EU scholars have, then, explored the overall composition of Commission expert groups on the basis of data from the register of expert groups.

They have noted that “three-quarters of the expert groups were informal” (Metz 2015: 62). Scholars have, moreover, noted that “almost half of all expert groups are exclusively composed of member-state representatives” (Metz 2015: 71; Gornitzka and Sverdrup 2011: 54). And, “national administration” representatives participate in 69.8 % of expert groups (Gornitzka and Sverdrup 2011: 55). These are followed by “societal actors” – “enterprises and industry”, “social partners” or “unions”, “NGOs”, “consumer organisations” and “practitioners” – participating in 40% of expert groups (Gornitzka and Sverdrup 2015: 157). Representatives of enterprises and industry represent the largest group amongst the societal actors (ibid.; Metz 2015: 71). And, “there are strong correlations between the participation of different kinds of societal actors” (Gornitzka and Sverdrup 2015: 157). “Academics” or “scientists”, then participate in 33.3% of expert groups (ibid.). In this case, “they do so most often in combination with other actors, and primarily when societal actors are involved and to a lesser extent when national officials are involved” (Gornitzka and Sverdrup 2011: 55).

The large number of expert groups exclusively composed of MS representatives, in this case, suggests that the Commission aims to primarily “seek information and to anchor its proposals” (Gornitzka and Sverdrup 2011: 56). Here, I detect the empirical fingerprint ‘identification of acceptable outcomes’ (“anchor ... proposals”) – this corresponds to the structured interaction

account (sufficient fingerprint). Moreover, the participation of both societal actors and scientists suggests that the Commission aims “to build and organise a broad ... base for its policies” (Gornitzka and Sverdrup 2011: 56). Here, I detect the empirical fingerprints ‘epistemic equality’ or ‘also excluded voices’ (“broad ... base”) – these correspond to deliberate social construction account or to the conflictual social construction account (necessary fingerprints).

EU scholars have, in addition, considered the composition of expert groups as managed by individual DGs.

They have found that DGs with “more legal competence” and responsible for “older ... policy field[s]” are more likely to run expert groups composed of MS representatives (Gornitzka and Sverdrup 2011: 58-59 and 60-62). At the same time, scholars have found that such DGs are not more or less likely to run expert groups comprising societal actors (Gornitzka and Sverdrup 2015: 160). Although scholars have also found that such DGs are more likely to run expert groups comprising specific societal actors – comprising representatives of industry or enterprise, as well as consumer organisations (ibid.). Scholars have also found that larger DGs are more likely to run expert groups comprising of societal actors and of scientists (Gornitzka and Sverdrup 2011: 63). These specific findings regarding the composition of the experts groups chime with the above observations.

EU scholars have, moreover, considered consultation practices based on the “content” of discussions in expert groups (Tørnblad 2018: 72).

In this case, they have observed experts providing “information”, as well as discussing their “preferences” or discussing “member state positions” (Tørnblad 2018: 79). Here, for the former, I detect the empirical fingerprint ‘selection of one research actor only’ (provide “information”) – this corresponds to the authoritative choice account (sufficient fingerprint.) Moreover, here, for the latter, I detect the empirical fingerprint ‘active interaction of the actors’ (discuss “preferences” and discuss “positions”) – this corresponds to the social construction accounts (necessary fingerprint.) Scholars have found that the provision of information is most common. Moreover, the discussion of preferences or positions is also widespread (Tørnblad 2018: 79). Scholars have, interestingly, also noted that the provision of information and the discussion of positions or preferences “are negatively correlated ... indicating that the instrumental role of expert arrangements is indeed a separate” (Tørnblad 2018: 80).

EU scholars have also explored different “uses” of expert groups by the Commission (Metz 2013: 270-271; Metz 2015: 44-46).

Scholars have, **firstly**, observed “problem-solving use” of expert groups. In this case, “information is used as factual evidence to solve a policy problem” (Metz 2013: 270). Here, I detect the empirical fingerprint ‘selection of one research actor only’ (“factual evidence”) – this corresponds to the policy work account authoritative choice account (sufficient fingerprint). Scholars have, **secondly**, observed “substantiating use” of expert groups. In this case, “expertise is ... used ... to substantiate a preferred position vis-à-vis other political actors” (Metz 2013: 271). Scholars have, **thirdly**, observed “consensus-building use” of expert groups. In this case, “stakeholders can meet, exchange (contradicting) views, and reach agreements” (Metz 2013: 271). Here, I detect the empirical fingerprints ‘dialogue’ and ‘consensus’ (“exchange ... views” and “consensus”) – these correspond to the deliberate social construction account (necessary fingerprint and sufficient fingerprint).

The problem-solving use of expert groups has then been associated with “complex issues” (Metz 2013: 274; Metz 2015: 170). Both the substantiating use of expert groups and the consensus-building use of expert groups have then been associated with “controversial issues” or with “contentious issues” (ibid.).<sup>25</sup> Scholars have, importantly, also noted that problem-solving use on the one hand, as well as substantiating use or consensus-building use on the other hand, often occurred in parallel. This reflects different aspects of a single proposal – this reflects “the fact that legislative proposals often contained both, technical details and controversial issues” (Metz 2013: 274).

As regards **online consultations**, these are conducted by the relevant lead DGs (Commission 2017 - 3: 72). And, all “consultation documents” are to be “endorsed” by the relevant ISG (Commission 2017 - 3: 82). The previous IA guidelines only required discussion of the consultation documents with the IASG (Commission 2017 - 3: 19) – not endorsement by the ISG.

Specific online consultations are, subsequently, to be published on the websites of the lead DGs (Commission 2017 - 3: 81). Moreover, links to the public consultations of all DGs are to be published on a Commission website – on the Commission’s “contribute to law-making portal” (Commission 2017 - 3: 71). The “contribute to law-making portal” was only recently created – its establishment was announced in 2015, and its operation started in 2016 (Commission 2015 - 3: 4; OECD 2016: 2). A previous portal for online consultations – the “Your Voice in Europe (YViE) portal” – was created

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“Complexity” has here been measured on the basis of assessments of Commission officials and of members of expert groups – as collected during interviews by the researchers (Metz 2015: 31 and 48). And, “salience” has here been measured on the basis of an analysis of media coverage – as conducted by the researchers (Metz 2015.: 47).

in 2001 (Commission 2001 - 2; Commission 2002 - 1: 20; Quittkat 2013 - 1: 88). The previous IA guidelines from 2009 (Commission 2009 - 1) stated that “public consultations must at least be publicised on ... ‘Your Voice in Europe’” (20). Scholars have, however, noted that this portal was not ‘reliable’ (Quittkat 2013 - 1: 88; Quittkat 2011: 657-658).

Scholars have, in addition, identified three types of online consultations – “open online consultations”, “selective online consultations” and “closed online consultations” (Quittkat 2011: 659-660). Here selective online consultations “are those geared towards well defined groups, although the Commission ... allows for interested parties to participate as well” (Quittkat 2011: 660). Moreover, the format of online consultations is “structured” or “standardized”, as well as “generic” or “non-standardized” (Commission 2017 - 4: 404; Quittkat 2013 - 1: 93-94). The former refers to questionnaires with closed questions. And, the latter includes questionnaires with open questions, as well as consultations on specific documents – in particular on “Green Papers” (ibid.). The relevant guidelines also address the trade-offs to be made when choosing an online consultation format. On the one hand, a structured format “facilitate[s] the analysis of responses” (Commission 2017 - 4: 405; Quittkat 2013 - 1: 94). On the other hand, a generic format “help[s] to avoid/mitigate the bias inherent in questionnaires” (Commission 2017 - 4: 408; Quittkat 2013 - 1: 94).

EU scholars have, then, explored the format of online consultations and responses to the different consultations – based on data from the websites of DGs, and data from the YViE portal.

Scholars have, **firstly**, observed that open online consultations present the “vast majority” of online consultations (Quittkat 2011: 659). Scholars have, then, observed that “companies and trade associations represent the largest group of participants” in online consultations (Quittkat 2013 - 1: 103; Quittkat 2011: 667). Scholars have also observed that online consultations are more inclusive when they are more salient and less complex (Røed and Wøien Hansen 2018: 1455). Here, I detect the empirical fingerprint ‘not selection of research actors or rather stakeholders’ and ‘not interaction of the actors’ (open consultations) – these correspond to the structured interaction account (necessary fingerprints). At the same time, scholars have also noted that there has over time been a shift from such open online consultations or public consultations to targeted consultations (Quittkat 2013 - 2: 78; Van Ballaert 2017: 419). Here, I detect the empirical fingerprint ‘selection of research actors or rather stakeholders’ (targeted consultation) – this corresponds to the social construction accounts (necessary fingerprint).

Scholars have, **secondly**, observed that the structured format of online consultations is the least common (Quittkat 2013 - 1: 95-96; Quittkat 2011: 661-662). They also observed that the “generic”

format and the “semi-structured” format are most common – with a gradual shift from the generic format to the semi-structured (Quittkat 2013 - 1: 95-96). Here, I detect the empirical fingerprint ‘structured consultation’ (shift to semi-structured format) – this corresponds to the structured interaction account (necessary fingerprint).

#### 4.5. Inter-Service Consultation with Adoption

In this section, I outline the formal process of ISC with subsequent adoption. I also consider the Commission's practices associated with this formal process. Those practices are, to recall, analysed in relation to the policy work accounts.

In terms of primary sources, I refer to the "Guide to Interservice Consultation", put forward by the Secretariat-General (SG 2009). I also refer to an "internal [Commission] Wiki" regarding the "procedures and good practice for interservice consultation" (Commission 2018). The former Guide is in this case "no longer updated" and "has been progressively replaced" by the latter Wiki (ibid.).

As regards the formal process of ISC with subsequent adoption, the ISC can only be launched once the relevant documents have been produced. This includes the IA Report, as well as the draft policy initiative or the draft proposal (Commission 2017 - 3: 16; Nugent and Rhinard 2015: 297). In this case, the IA Report includes the relevant information gathered during the IA process, including during consultation (Commission 2017 - 4: 42). The relevant documents also include a "cover note" by the Director-General of the lead DG that "explains the context of the dossier" (Commission 2018: 16).

Moreover, launching the ISC requires approval from the political level of the Commission. More specifically, the "cabinet(s) concerned" are to be "consulted" (Commission 2014: 22). And, launching the ISC requires "approval" of the relevant Commissioner and Vice-President(s) (Commission 2014: 22; Commission 2018: 12 and 14). Vice-Presidents are, in this case, Commissioners tasked with "steering" and "coordinating" the work of the College (Commission 2014: 2; Bürgin 2018: 843). The College has included such Vice-Presidents since 2014 (ibid.).

The ISC documents are, subsequently, sent to all relevant DGs by the lead DG (SG 2009: 7). According to the Rules of Procedure of the Commission (Commission 2011 - 4), "the department responsible shall ... consult the departments with a legitimate interest in the draft text in sufficient time" [Article 23(3); SG 2009: 5; Commission 2018: 19; Hartlapp et al. 2014: 16]. The ISC documents are also sent to certain horizontal DGs – including the Secretariat-General and the Legal Service [Commission 2011 - 4: Article 23(5) and Article 23(4); SG 2009: 5; Commission 2018: 19; Hartlapp et al. 2014: 16]. The ISC is, in this case, conducted using an online tool – previously "CIS-Net" online tool (SG 2009: 1; Hartlapp et al. 2014: 16-17), now "Decide Consultation" online tool (Commission 2018: 2).

The different DGs, then, have fifteen working days to respond to the ISC, provided that the ISC “dossier” is longer than 20 pages (otherwise ten working days) (SG 2009: 4; Commission 2018: 34-35). In “exceptional cases” of “demonstrable political urgency” the ISC can also be “fast-track[ed]” (Commission 2018: 30; SG 2009: 14). In this case, the ISC is conducted during a meeting (Commission 2018: 31 and 31). Such “fast-track[ing]” requires the approval of the Secretariat-General (Commission 2018: 30 and 32). There are three types of responses to an ISC – “agreement” or rather “positive opinion”, “favourable opinion subject to comments being taken into account” or rather “positive opinion with comments”, and “negative opinion” (SG 2009: 8-9; Commission 2018: 46). The approval of the relevant Cabinets is required for the responses of DGs, at least for “negative opinions” (SG 2009: 9; Commission 2018: 47). If required, the lead DG amends the draft policy initiative to address the comments or opinions of the DGs (SG 2009: 10; Commission 2018: 49). When the amendments are significant (i.e. “raising the question as to whether some departments would still give their approval”), or when a negative opinion has been issued, the ISC is to be relaunched (SG 2009: 11; Commission 2018: 46). In case of negative opinions or in case of conflicts between DGs, “the Secretariat-General can be asked to arbitrate” (Commission 2009 - 1: 9). If, however, negative opinions cannot be addressed or conflicts between DGs cannot be resolved, then these are referred to the political level of the Commission (SG 2009: 10; Commission 2018: 51; Nugent and Rhinard 2015: 297; Hartlapp et al. 2014: 17 and 249).

Conflicts that remain unresolved during the ISC are resolved during the adoption of the policy initiative by the College, at the political level of the Commission.

**Firstly**, conflicts are addressed during the “Special Chef meetings” of “sectorally responsible members of all Commissioners’ cabinets [which] is chaired by the respective member from the ... President’s cabinet” (Hartlapp et al. 2014: 17 and 249; Nugent and Rhinard 2015: 159-160; Commission 2014: 4). **Secondly**, conflicts are addressed during the weekly “Hebdo meetings” of heads of Cabinet, chaired by the Secretary-General (Hartlapp et al. 2014: 17 and 249; Nugent and Rhinard 2015: 121 and 160-161; Commission 2014: 4). **Thirdly**, conflicts are addressed during the weekly College meetings (Hartlapp et al. 2014: 17 and 249; Commission 2014: 4). Though, “the purpose of the sequence of meetings is to reduce the number of outstanding questions at each stage, so that College meetings are devoted to debating the key political issues” (Commission 2014: 4; Hartlapp et al. 2014: 249-250). For College meetings, “decisions ... are as a rule taken by consensus” (Commission 2014: 4). Though, a decision by vote can be requested by any member of the Commission, and decisions are then taken by majority (Commission 2011 - 4: Article 8). Such

voting is, however, extremely rare (Hartlapp et al. 2014: 249-250; Nugent and Rhinard 2015: 127-128; Kassim et al. 2017: 662-663).<sup>26</sup>

As regards the Commission's practices associated with the formal process of ISC with subsequent adoption, EU scholars have explored the interactions of the different DGs and horizontal DGs during the ISC. They have also considered the rationales underlying these interactions.

In most cases, EU scholars have observed conflicts between the DGs or horizontal services during the ISC (Hartlapp et al. 2014: 254 and 32; Hartlapp et al. 2013: 435). In most of these "conflictual cases", the lead DG was then "most powerful" (Hartlapp et al. 2014: 254; Hartlapp et al. 2013: 435). Importantly, the lead DG exploits "strategic and gatekeeping advantages" – determining the timing of different steps in the ISC process. And, the lead DG exploits "informational advantages" – having control over the information gathered during the IA process (Hartlapp et al. 2014: 254-255; Hartlapp et al. 2013: 435). At the same time, scholars have noted that interaction of DGs already before the ISC – during the IA process, in the ISG – increasingly limits this "discretion" of the lead DG (Bürgin 2018: 846).

Scholars have, in addition, observed that the Secretariat-General is "a powerful broker in quarrels between ... DGs" during the ISC (Hartlapp et al. 2014: 256). For this purpose, the Secretariat-General relies on "informal brokering" and "politico-administrative knowledge" (Hustedt and Seyfried 2018: 381). In this case, the Secretariat-General's brokering is particularly important when "policies are considered salient" (Hustedt and Seyfried 2018: 381). Although the Secretariat-General is – due to its lack of "in-house expertise" – considered to not yet be able to adopt a more "interventionist role" (Kassim et al. 2013: 196 and 10). At the same time, other scholars have noted that the Secretariat-General has now indeed adopted a more interventionist role. The Secretariat-General is now a "personal service of the Presidency" or rather to the "President's service, rather than a 'guardian of collegiality'" (Kassim et al. 2017: 655, 658 and 660; Bürgin 2018: 839-840 and 843). The Secretariat-General is then "defending" the positions of the Presidency already before the ISC – i.e. during the IA process, and in the ISG (Bürgin 2018: 846). This more interventionist role of the

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Ultimately, policy initiatives are formally adopted by the College, by the Commission – either by a decision at a weekly College meeting, or by a decision through "written procedure" (policy initiatives not discussed at a College meeting) (Commission 2014: 4; Nugent and Rhinard 2015: 119-120).

Secretariat-General is supported by an increase in the staff of the Secretariat-General (Bürgin 2018: 846; Kassim et al. 2017: 661).

As regards the rationales underlying those interactions, EU scholars have – **firstly** – observed a “technocratic” rationale – with “actors enter[ing] position formation without pre-defined goals except for finding the optimal policy solution to an externally defined problem” (Hartlapp et al. 2014: 283-284). Here, I detect the empirical fingerprint ‘selection of one research actor only’ (“optimal ... solution”) – this corresponds to the authoritative choice account (sufficient fingerprint). Scholars have, **secondly**, observed a “policy-seeking” rationale – with “actors enter[ing] the process with pre-defined ideological or normative beliefs” (Hartlapp et al. 2014: 286). Scholars have, **thirdly**, observed a “competence-seeking” rationale – with “actors ... enter[ing] position formation with the goal of retaining or expanding their competences” (Hartlapp et al. 2014: 286). This rationale is based on broad “utility maximization” (ibid.).

The technocratic rationale has then been associated with “low public salience” (Hartlapp et al. 2014: 292). While the policy-seeking rationale and the competence-seeking rationale have been associated with “high-salience cases” (ibid.). Moreover, the competence-seeking rationale has been associated with “low policy uncertainty” (Hartlapp et al. 2014: 291). While the policy-seeking rationale has been associated with “high policy uncertainty” (ibid.). With this suggesting that “actors resort to ‘basic’ values when other cues are unavailable” (ibid.).<sup>27</sup>

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In this case, “salience” has been measured on the basis of an analysis of media coverage (Hartlapp et al. 2014: 41). And, “uncertainty” has been assessed “by drawing on information collected through ... interviews, media coverage, and secondary literature” (ibid.).

#### 4.6. Commission's general practices

I have analysed the Commission's practices – associated with the formal IA process (including the formal consultation process) as well as with the formal process of ISC with subsequent adoption – in relation to the policy work accounts.

I detected empirical fingerprints corresponding to all of the policy work accounts. The fingerprints included fingerprints corresponding to the 'traditional' authoritative choice account or structured interaction account or rather 'traditional fingerprints', as well as fingerprints corresponding to the 'novel' social construction accounts or rather 'novel fingerprints'.

Traditional fingerprints and novel fingerprints were detected for the formal IA process and for the formal consultation process. For the formal process of ISC with adoption, only traditional fingerprints were detected. In addition, for the formal consultation process, the novel fingerprints included not only necessary fingerprints but also a sufficient fingerprint.

The detection of traditional and novel fingerprints by the EU studies research could be a result of the Commission's practices varying from policy initiative to policy initiative, and/or a result of the Commission's practices for a given policy initiative being varied. In any case, those variations – then, importantly – warrant exploring the Commission's practices for specific policy initiatives, and warrant exploring in detail the Commission's practices throughout the making of such specific policy initiatives.

In addition, the formal IA process and the formal consultation process are identified as noteworthy and particularly noteworthy respectively – in terms of the fingerprints detected (also novel fingerprints detected for the former and the latter, including a sufficient novel fingerprint for the latter).

In this thesis, I – therefore, hereinafter – explore in detail the practices employed throughout the making of the 2011 Transport White Paper (Commission 2011 - 1). I identify 'policy work instances' – as defined above – throughout the making of that White Paper. And, in doing so I in particular focus on the formal IA process and the formal consultation process.

## Chapter 5 – Making of the 2011 Transport White Paper

### 5.1. Policy work instances, clusters of steps, and key novel policy work instances

In this chapter, I outline the Commission’s specific practices in the making of the 2011 Transport White Paper. The exploration of the specific practices, here, takes into account the above exploration of the formal process of EU policy-making, and the above exploration of the associated general EU policy-making practices. In doing so, I in particular focus on the formal IA process and the formal consultation process – as noted above.

In terms of sources, I refer to the documents analysed for the thesis (listed in **Appendix III**), which are a subset of the documents produced during the making of the 2011 Transport White Paper. I, furthermore, explore discussions regarding the making of the 2011 Transport White Paper. In other words, I – as outlined above – explore the interactive processes regarding the context.

I analyse the Commission’s specific practices in relation to the policy work accounts. In doing so, I – as noted above – identify ‘**policy work instances**’. I have defined policy work instances as **(1)** specific formal step(s), as well as **(2)** associated specific practices. And, I – then, to recall – differentiate policy work instances in terms of the empirical fingerprints detected – ‘traditional policy work instances’ **and** ‘novel policy work instances’ (with fingerprints corresponding to the ‘traditional’ authoritative choice account or structured interaction account or rather ‘traditional fingerprints’ detected, **as well as** fingerprints corresponding to the ‘novel’ social construction accounts or rather ‘novel fingerprints’ detected<sup>28</sup>).

Moreover, when identifying the policy work instances, I only consider the description and identification of aims regarding formal process and practices (‘V.i. reflection’). Critique of the past formal process and practices, as well as desired future formal process and practices (‘V.ii. critique’) – or rather discussions on the making of the 2011 Transport White Paper – are considered separately.

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At least partially.

In addition, I organise the formal steps in '**clusters of formal steps**'. In this case, the aim is to provide an overview of the Commission's specific practices in the making of the White Paper – including of the formal steps, and of the associated policy work instances.

Finally – for the clusters of steps – I then identify, if applicable, associated '**key novel policy work instances**', as well as associated 'other policy work instances' (including other novel instances, and including other traditional instances). 'Key novel policy work instances' are, in this case, novel policy work instances that are most noteworthy in the context of a given cluster of steps – most noteworthy in terms of the empirical fingerprints detected<sup>29</sup>. That focus on key novel policy work instances again takes into account that – for the purposes of the process tracing conducted for this thesis – I set 'novel policy work account, or not' as empirical fingerprint for the independent variable (policy-making context, over time).

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First sufficient novel fingerprints considered, then any novel fingerprints considered.

## 5.2. First cluster – Focus groups and studies

The first cluster of steps in the making of the 2011 Transport White Paper encompassed three steps – a set of focus groups, as well as two studies. These first steps took place between February 2009 and August 2009.

The **first step** consisted of a set of focus groups.

Three focus groups were organised by DG Energy and Transport (DG TREN) (DG TREN 2009 - 1: 4). Participants of the focus groups included stakeholders – companies and industry organisations. Participants also included research actors – institutes and universities. They also included representatives of the Commission – of different DGs, of the Joint Research Centre (JRC)<sup>30</sup>, of the European Environment Agency (EEA), as well as of the Cabinet of the Commissioner for Transport (Antonio Tajani). Finally, participants included representatives of the MSs (DG TREN 2009 - 1: 42-43). Participants of the focus groups therefore included research actors and stakeholders. DG TREN published a report that “summarises the discussions and conclusions” of these on 20 February 2009 (DG TREN 2009 - 1: 4). This report did not identify actors.

Here, I detect the empirical fingerprint ‘not selection of research actors or rather stakeholders’ (DG TREN did not select focus groups participants) – this corresponds to the structured interaction account (necessary fingerprint). Moreover, I here detect the empirical fingerprint ‘internal decision by research actors or rather stakeholders’ (report of focus groups did not identify actors) – this corresponds to the social construction accounts (necessary fingerprint).

In the report, DG TREN noted that the focus groups “have been established to gather expert views” (DG TREN 2009 - 1: 4). The report also stated that other actors (other than DG TREN) identified a “need to extend the knowledge base, the evidence base and the practice base” (DG TREN 2009 - 1: 41). Here, I detect the empirical fingerprint ‘selection of research actors or rather stakeholders’ (“expert views”, as well as “extend ... evidence base and ... practice base”) – this corresponds to the social construction accounts (necessary fingerprint). At the same time, I here detect the empirical fingerprint ‘structured consultation’ (“gather”) – this corresponds to the structured interaction account (necessary fingerprint).

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The JRC is the “Commission’s science and knowledge service” (Commission 2020 - 2).

To sum up, the Commission's practices – for this step (focus groups) – correspond to the structured interaction account and to the social construction accounts. And, the discussions on this step also correspond to these accounts (with 'V.i. reflection').

The **second step** consisted of a study – the “TRANSvisions” study (Petersen et al. 2009).

The study was commissioned by DG TREN. It was authored by a study consortium of research actors – as selected by DG TREN. The study consortium included various research actors. It included institutes and universities, as well as research organisations (Petersen et al. 2009: 1). The final report of the TRANSvisions study was published in March 2009. It was jointly authored by the study consortium members. The published final report is, however, “version 2.2” (Petersen et al. 2009: 3). This suggests that DG TREN reviewed the final report before publication.

Here, I detect the empirical fingerprints 'selection of research actors' and 'internal decision by research actors' (DG TREN selected the study consortium, and study consortium members jointly authored the final report) – these correspond to the social construction accounts (necessary fingerprints). Moreover, I here detect the empirical fingerprint 'external decision by policy worker', with a delay (DG TREN reviewed the final report) – this corresponds to the structured interaction account (necessary fingerprint).

In the final report, the study consortium outlined in detail how it conducted the TRANSvisions study. The study consortium conducted a “Delphi survey among experts on foresight studies” and then organised an “external expert seminar” (Petersen et al. 2009: 20). The aim of this was to establish a “professional consensus” (Petersen et al. 2009: 57 and 22). The study consortium also conducted “participatory scenario development”, with the aim of “consensus-building” and “acceptance” (Petersen et al. 2009: 93). Here, I detect the empirical fingerprints 'active interaction of the actors', as well as 'dialogue' and 'conflictual consensus' (“seminar”, as well as “consensus-building” and “acceptance”) – these correspond to the deliberative social construction account and to the conflictual social construction account (necessary fingerprints and sufficient fingerprint). The study consortium, moreover, conducted “comprehensive literature review on scenarios and drivers” and a review of “long term forecast studies” (Petersen et al. 2009: 25 and 130). The aim was to conduct a “solid analysis of already existing studies and research projects” (Petersen et al. 2009: 21). Here, I detect the empirical fingerprint 'selection of one research actor only' (“solid analysis”) – this corresponds to the authoritative choice account (sufficient fingerprint).

In the final report, the study consortium also confirmed that the study was reviewed by DG TREN. In “a number of meetings” “important aspects to include in the study” were identified (Petersen et al. 2009: 20). The meetings then “led to important improvements” to the study (ibid.). Here, I detect the empirical fingerprint ‘external decision by policy worker’ (DG TREN reviewed the study) – this corresponds to the structured interaction account (necessary fingerprint).

To sum up, the Commission’s practices – for this step (TRANSvisions study) – correspond to the structured interaction account and to the social construction accounts. And, the discussions on this step also correspond to these accounts (with ‘V.i. reflection’). They, however, in addition correspond to the authoritative choice account (with ‘V.i. reflection’).

The **third step** consisted of another study – the “evaluation of the Common Transport Policy” study or “evaluation study” (Steer Davies Gleave 2009)

The study was commissioned by DG TREN. It was authored by a single research actor, by the research organisation “Steer Davies Gleave” (Steer Davies Gleave 2009: 1). The final report was published in August 2009. Here, I detect the empirical fingerprint ‘selection of one research actor only’ (“Steer Davies Gleave”) – this corresponds to the authoritative choice account (sufficient fingerprint).

In the final report, Steer Davies Gleave outlined how it conducted the evaluation study. It noted that the “methodology” of the study was agreed with the Commission, i.e. with DG TREN (Steer Davies Gleave 2009: 9). Here, I detect the empirical fingerprint ‘selection of one research actor only’ (Steer Davies Gleave and DG TREN set the study methodology) – this corresponds to the authoritative choice account (sufficient fingerprint).

To sum up, the Commission’s practices – for this step (evaluation study) – correspond to authoritative choice account. And, the discussions on this step also correspond to this account (with ‘V.i. reflection’).

In this first cluster of steps in the making of the 2011 Transport White Paper (focus groups and studies), I – then – identify the preparation of the TRANSvisions study by the study consortium (in

second step) as the key novel policy work instance.<sup>31</sup> And, I identify a shift from an initial focus on novel instances (focus groups and TRANSvisions study), to a subsequent focus on a traditional instance (evaluation study).

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<sup>31</sup>

Novel instance (as including social construction accounts), as well as sufficient fingerprint (for conflictual social construction account).

### 5.3. Second cluster – Consultations and high-level conferences

The second cluster of steps in the making of the 2011 Transport White Paper encompassed five steps – two consultations and two high-level conferences, as well as a Communication. These steps took place between January 2009 and November 2009. This second cluster of steps and the first cluster of steps (that took place between February 2009 and August 2009) therefore overlapped.

The **first step** consisted of a first consultation.

The first consultation was organised by DG TREN. It was open between 30 January 2009 and 27 March 2009 (DG TREN 2009 - 2). DG TREN launched the consultation online, and invited “all interested parties willing to participate” (ibid.). The consultation was thus open. DG TREN then invited interested parties to “submit their own views on the future of transport” (ibid.). The consultation was thus not structured. Participants submitted their responses to the consultation by e-mail. Responses to the consultation were received from stakeholders – companies and industry organizations, unions, public transport actors, cities, as well as an NGO (“health community”). Responses were also received from research actors – a university and a research organisation (DG TREN 2009 - 2). Participants in the consultation therefore included research actors and stakeholders. DG TREN published the responses of the actors to the consultation online, but did not produce a report on the consultation (DG TREN 2009 - 2).

Here, I detect the empirical fingerprint ‘not selection of research actors or rather stakeholders’ and ‘not interaction of the actors’ (open consultation) – this corresponds to the structured interaction account (necessary fingerprints).

In their responses to the consultation, actors called for “research and unbiased evaluations” (EUROCHAMBRES 2009: 12), for a “more scientific approach” (ACEA 2009 - 1: 2), as well as for a “fair analysis of facts and figures” (ERF 2009 - 1: 2). Here, I detect the empirical fingerprint ‘selection of one research actor only’ (“unbiased evaluations”, “scientific approach” and “facts”) – this corresponds to the authoritative choice account (sufficient fingerprint). One actor also noted that “stakeholders should have been given the possibility to comment” on the studies (first cluster) (ACEA 2009 - 1: 2). Another actor called for a “dialogue of all actors concerned at all levels” (EUROCHAMBRES 2009: 12). Here, I detect the empirical fingerprints ‘structured consultation’ and ‘dialogue’ (“possibility to comment” and “dialogue ... actors”) – these correspond to the structured interaction account and to the deliberative social construction account (necessary fingerprints).

To sum up, the Commission's practices – for this step (first consultation) – correspond to the structured interaction account. And, the discussions on this step also correspond to this account (with 'V.ii. critique'). They, however, in addition correspond to the authoritative choice account and to the deliberative social construction account (with 'V.ii. critique').

The **second step** consisted of a first high-level conference.

The first high-level conference was organised by DG TREN (DG TREN 2009 - 3: 1). It was held on 9 and 10 March 2009 (ibid.). The "conference was structured along four workshops" (ibid.). DG TREN noted that "together stakeholders and policymakers, academics and representatives of Member States, European Institutions and NGOs ... were all invited to contribute ..." (ibid.). DG TREN thus selected the participants – at least the "panellists" for the workshops. Participants of the high-level conference included stakeholders – companies and industry organizations, unions, public transport actors, cities and regions, NGOs (environmental, disability and age, passengers, as well as cycling), as well as public affairs consultancies and law firms. Participants also included research actors – institutes and universities, as well as research organisations. They also included representatives of the Commission – of different DGs, of the JRC, of agencies (TEN-T and GNSS), as well as of the Cabinet of the Commissioner for Transport (Antonio Tajani). Participants also included representatives of other EU institutions – of the Council, of the European Parliament (EP) and of the Committee of Regions. Finally, participants included representatives of MSs and other states (DG TREN 2009 - 4). Participants of the high-level conference therefore included research actors and stakeholders. DG TREN then published a "summary record" of the conference shortly after the conference, on 13 March 2009 (DG TREN 2009 - 3). This report identified the different actors, but only provided a summary of the contributions of the panellists.

Here, I detect the empirical fingerprint 'selection of research actors or rather stakeholders' (DG TREN selected the participants, at least the panellists) – this corresponds to the social construction accounts (necessary fingerprint).

In the report, DG TREN noted that the actors "were all invited to contribute ... and to exchange ideas and discuss ..." (DG TREN 2009 - 3: 1). Here, I detect the empirical fingerprint 'active interaction of the actors' ("exchange ideas and discuss") – this corresponds to the social construction accounts (necessary fingerprint). The report also stated that one of the actors (FIA) called for "policy ... [to] be based on relevant facts and good analysis" and stressed that "policy

must be based on real needs” (DG TREN 2009 - 3: 8). Here, I detect the empirical fingerprint ‘selection of one research actor only’ (“facts and good analysis”) – this corresponds to the authoritative choice account (sufficient fingerprint).

To sum up, the Commission’s practices – for this step (first high-level conference) – correspond to the social construction accounts. And, the discussions on this step also correspond to the these accounts (with ‘V.i. reflection’). They, however, in addition correspond to the authoritative choice account (with ‘V.ii. critique’).

The **third step** consisted of a Communication (Commission 2009 - 2).

The Communication was published on 17 June 2009 as Commission Communication entitled “A sustainable future for transport: Towards an integrated, technology-led and user friendly system” (Commission 2009 - 2). The Communication “summarises the results of this wide reflection” – i.e. the results of all of the previous steps (Commission 2009 - 2: 2). The Communication was drafted by DG TREN as the lead DG, though as a Commission Communication it was ultimately adopted by the College. The Communication summarised the results of all the previous steps in a structured manner. It inter alia identified different “policies for sustainable transport”, including policies relating to “technology” and policies relating to “behaviour” (Commission 2009 - 2: 12-18). In doing so, the Communication, did not identify actors.

Here, I detect the empirical fingerprint ‘external decision by policy worker’ (DG TREN drafted the Communication, and did not identify actors in this) – this corresponds to the structured interaction account (necessary fingerprint).

To sum up, the Commission’s practices – for this step (Communication) – correspond to the structured interaction account.

The **fourth step** consisted of a second consultation.

The second consultation was organised by DG TREN. It was open between 17 June 2009 and 30 September 2009 (DG TREN 2009 - 5). DG TREN launched the consultation online, and encouraged “all interested parties to contribute” (ibid.). The consultation was thus open. DG TREN put forward “consultation material” – including a “guidance document” (DG TREN 2009 - 6), as well as the above Communication (third step – Commission 2009 - 2). The guidance document identified “policy

fields for possible intervention” and asked actors to “comment on these, provide examples of actions that have proved successful and submit their views on which specific measures” (DG TREN 2009 - 6: 1-2). The policy fields correspond to the “policies for sustainable transport” identified in the Communication (Commission 2009 - 2: 12-18). The consultation was thus semi-structured. Participants submitted their responses to the consultation by e-mail. Responses to the consultation were received from stakeholders – companies and industry organizations, unions, public transport actors, cities and regions, NGOs (environmental, citizens’ groups, road safety, walking and cycling, as well as “health communities”). Responses were also received from research actors – institutes and universities, as well as research organisations. Responses were also received from MSs (DG TREN 2009 - 5). Participants in the consultation therefore included research actors and stakeholders. DG TREN published the responses of the actors to the consultation online (DG TREN 2009 - 5). DG TREN also produced a “summary report” on the responses to the consultation (DG TREN 2009 - 7). This report did identify the different actors.

Here, I detect the empirical fingerprint ‘not selection of research actors or rather stakeholders’ and ‘structured consultation’ (open semi-structured consultation) – this corresponds to the structured interaction account (necessary fingerprints).

In the introduction to the consultation report, DG TREN noted that the report presents “main positions within each of the different policy fields” (DG TREN 2009 - 7: 1). Here, I detect the empirical fingerprint ‘identification of acceptable outcomes’ (“main positions”) – this corresponds to the structured interaction account (sufficient fingerprint).

In their responses to the consultation, some actors called for “relevant facts and thorough analysis” (Mobility for Prosperity in Europe 2009: 1 and 2), for “full impact” to be “properly assessed” (ACEA 2009 - 2: 5), as well as for “correct facts and figures” (ERF 2009 - 2: 1). Here, I detect the empirical fingerprint ‘selection of one research actor only’ (“facts” and “properly assessed”) – this corresponds to the authoritative choice account (sufficient fingerprint). Other actors noted that the consultation is “too sensitive to strong interests” (SIKA 2009: 31– for Council Presidency). They then called for the Commission to make sure that “multiple responses are received from interests in every Member State in the EU” (IE 2009: 1), and that there is “close cooperation with all user[s] of the transport system” (SE 2009: 3). Here, I detect the empirical fingerprint ‘also excluded voices’ (not “strong interests” and “all user[s]”) – this corresponds to the conflictual social construction account (necessary fingerprint).

To sum up, the Commission's practices – for this step (second consultation) – correspond to the structured interaction account. And, the discussions on this step also correspond to this account (with 'V.i. reflection'). They, however, in addition correspond to the authoritative choice account and to the conflictual social construction account (with 'V.ii. critique').

The **fifth step** consisted of a second high-level conference.

The second high-level conference was organised by DG TREN (DG TREN 2009 - 8: 1). It was held on 20 November 2009 (ibid.). The second high-level conference included discussions of "42 high level speakers ... in 6 thematic workshops" (ibid.). DG TREN likely selected these high-level speakers (as was the case for the second step). Participants of the high-level conference included stakeholders – companies and industry organizations, unions, cities and regions, NGOs (environmental, citizens' groups, disability, as well as passengers), as well as public affairs consultancies and law firms. Participants also included research actors – institutes and universities, as well as platforms. They also included representatives of the Commission – of different DGs, of the JRC, of an agency (TEN-T). Participants also included representatives of other EU institutions – of the Council, of the EP and of European Economic and Social Committee (EESC). Finally, participants included representatives of MSs and other states (DG TREN 2009 - 9). Participants of the high-level conference therefore included research actors and stakeholders. DG TREN then published a "summary record" of the conference, after the conference (DG TREN 2009 - 8). This report identified the different actors, but only provided a summary of the contributions of the panellists.

Here, I detect the empirical fingerprint 'selection of research actors or rather stakeholders' (DG TREN likely selected the high-level speakers) – this corresponds to the social construction accounts (necessary fingerprint).

In the report, DG TREN noted that the "aim of the conference was to collect stakeholders' views on concrete measures to consider" (DG TREN 2009 - 8: 1). Here, I detect the empirical fingerprint 'not interaction of the actors' and 'structured consultation' ("collect stakeholders' views on concrete measures") – this corresponds to the structured interaction account (sufficient fingerprint). In a speech at the start of the conference, the Director-General of DG TREN Matthias Ruete noted that the "workshops ... can help ... clarifying the different positions and ... finding the right balance between different views" (DG TREN 2009 - 10: 1-2). For this purpose DG Ruete, in his speech, also referred to DG TREN's report on the second consultation (i.e. to DG TREN 2009 - 7), and "sketch[ed] the main points and the main dividing lines of these contributions" (DG TREN 2009 - 10: 1-2). Here,

I detect the empirical fingerprint ‘not interaction of the actors’ and ‘identification of acceptable outcomes by the policy worker’ (“clarifying ... positions” and “sketch ... main dividing lines”, as well as “right balance between different views”) – this corresponds to the structured interaction account (necessary fingerprint and sufficient fingerprint).

To sum up, the Commission’s practices – for this step (second high-level conference) – correspond to the social construction accounts. But, the discussions on this step do not correspond to these accounts. They, however, in addition correspond to the structured interaction account (with ‘V.i. reflection’).

In this second cluster of steps in the making of the 2011 Transport White Paper (consultations and high-level conferences), I – then – identify the second high-level conference (fifth step) as the key novel policy work instance.<sup>32</sup> In addition, I identify one focus on traditional instances (first consultation, Communication, and second consultation), and another focus on a novel instance (first high-level conference).

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<sup>32</sup>

Novel instance (as including social construction accounts), as well as sufficient fingerprint (for structured interaction account).

#### 5.4. Third cluster – Working group

The third cluster of steps in the making of the 2011 Transport White Paper only encompassed one step – a Commission working group. This step took place between 4 November 2009 and 23 June 2010. This third cluster of steps therefore followed the second cluster of steps (that took place between January 2009 and November 2009), with a small overlap.

The Commission working group – or “high level working group on the decarbonisation of transport” (DG TREN 2009 - 11: 1) – was established by a “decision of Directors General to coordinate the work of the various DGs” (DG TREN 2010 - 1: 2). The working group consisted of the working group, as well as four “subgroups” or “interservice ... groups” (DG TREN 2010 - 1: 3; DG MOVE 2010 - 1: 2). The working group met three times – on 4 November 2009, on 21 January 2010, as well as on 23 June 2010. And, the four subgroups met three times each – between February and May 2010. The establishment of the working group by a decision of the Directors-General, suggests that participation of DGs in the working group was also agreed between the Directors-General. As for the participation of DGs in the subgroups, however, DGs “expressed interest in participating in ... these subgroups”, and DGs were “to decide on their participation based on the agenda circulated in advance of each session” (DG TREN 2010 - 1: 3-4). DG TREN or DG Mobility and Transport (DG MOVE)<sup>33</sup> produced minutes of the working group meetings, as well as of the subgroups meetings. These minutes identified the different actors or DGs. In addition, the different subgroups produced “thematic papers ... list[ing] the possible policy measures discussed in [subgroups] meetings” (DG MOVE 2010 - 1: 2). These thematic papers did not identify the different actors or DGs.

Here – for the working group – the empirical fingerprints ‘selection of research actors or rather stakeholders’ and ‘active interaction of the actors’ (Directors-General likely agreed on participants and discussions during working group meetings) – this corresponds to the social construction accounts (necessary fingerprint). Moreover, here – for the subgroups – the empirical fingerprint ‘not selection of research actors or rather stakeholders’ (DGs were “to decide on their participation”) – this corresponds to the structured interaction account (necessary fingerprint). And, here – also for the subgroups – the empirical fingerprint ‘internal decision by research actors or rather stakeholders’ (subgroups produced thematic papers that did not identify actors) – this corresponds to the social construction accounts (necessary fingerprint).

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<sup>33</sup>

DG MOVE was created on 17 February 2010. It was created by splitting DG TREN into DG MOVE and DG Energy (DG ENER) respectively (Commission 2010).

In the minutes of the last working group meeting (23 June 2010), DG MOVE noted that the thematic papers produced by the subgroups “offered deliberately a comprehensive view”, offering a “‘bottom-up’ view” (DG MOVE 2010 - 1: 2-3 and 3). DG MOVE also noted that the subsequent working group meeting (of 23 June 2010) rather adopted a “‘top-down’ approach” (DG MOVE 2010 - 1: 3). Here, I detect the empirical fingerprint ‘selection of research actors or rather stakeholders’ (“deliberately ... comprehensive view”) – this corresponds to the social construction accounts (necessary fingerprint). Moreover, I here detect the empirical fingerprint ‘external decision by policy worker’ (“‘top-down’ approach”) – this corresponds to the structured interaction account (necessary fingerprint).

As noted in the working group meetings minutes, some DGs called for a “clarification on the scope of the activities of the subgroups” (DG Internal Market and Services – DG MARKET) and called for “a clear mandate for each subgroup” (DG Economic and Financial Affairs – DG ECFIN) (DG TREN 2010 - 1: 4). Here, I detect the empirical fingerprint ‘selection of research actors or rather stakeholders’ (“clear mandate”) – this corresponds to the social construction accounts (necessary fingerprint). Moreover, a DG MOVE unit other than the DG MOVE lead unit [Unit B.1, not the DG MOVE lead unit (Unit A.3)] – more generally – noted that there has been a “lack of coordination/cooperation between departments [i.e. DGs] (and within DG MOVE) leading to sub-optimal decisions” (DG MOVE 2010 - 1: 3). Here, I detect the empirical fingerprint ‘active interaction of the actors’ (“cooperation between departments”) – this corresponds to the social construction accounts (necessary fingerprint).

To sum up, the Commission’s practices – for this step (working group) – correspond to the structured interaction account and to the social construction accounts. And, the discussions on this step also correspond to these accounts (with ‘V.i. reflection’ and with ‘V.ii. critique’).

In this third cluster of steps in the making of the 2011 Transport White Paper (working group), I – then – identify the subgroups as the key novel policy work instance.<sup>34</sup>

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<sup>34</sup>

Novel instance (as including social construction accounts – for both practices and ‘V.i. reflection’), but not sufficient fingerprint.

## 5.5. Fourth cluster – IA preparation and review

The fourth cluster of steps in the making of the 2011 Transport White Paper encompassed two steps – the IA preparation by the “Impact Assessment Steering Group” (IASG), and the IA review by the “Impact Assessment Board” (IAB). These steps took place between 21 October 2010 and 2 February 2011. This fourth cluster of steps therefore followed the third cluster of steps (that took place between 4 November 2009 and 23 June 2010).

The **first step** consisted of the preparation of the IA by the IASG.

In the case of the 2011 Transport White Paper, two IAs were prepared in parallel – an IA for the Transport White Paper and an IA for the “Low Carbon Economy Roadmap” (Commission 2011 - 5). These IAs were prepared by DG MOVE and by DG Climate Action (DG CLIMA) respectively. A joint IASG was set up to develop the two IAs. The joint IASG met three times – on 23 October 2010, on 25 November 2010, as well as on 14 December 2010. The three meetings of the IASG were chaired by only DG CLIMA, by DG MOVE with DG ENER and DG CLIMA, as well as by DG CLIMA with DG MOVE, respectively (DG CLIMA 2010: 1; DG MOVE 2010 - 2: 1; DG CLIMA and DG MOVE 2010: 1). Minutes of the IASG meetings were produced by DG CLIMA, by DG MOVE, as well as by DG CLIMA with DG MOVE respectively (DG CLIMA 2010; DG MOVE 2010 - 2; DG CLIMA and DG MOVE 2010). The minutes identified the different actors or DGs. Furthermore, DG MOVE produced a revised draft IA for the last IASG meeting (14 December 2010) (DG MOVE 2010 - 3) – based on a selection from the amendments of the IA draft discussed during the second IASG meeting (25 November 2010). DG MOVE also produced another revised draft IA after the last IASG meeting (14 December 2010) (DG MOVE 2010 - 4) – based on a selection from the amendments of the IA draft discussed during this meeting.

Here, I detect the empirical fingerprint ‘active interaction of the actors’ (discussions during IASG meetings) – this corresponds to the social construction accounts (necessary fingerprint). Moreover, I here detect the empirical fingerprint ‘external decision by the policy worker’ (DG MOVE selected amendments for IA revisions) – this corresponds to the structured interaction account (necessary fingerprint).

In the minutes of the last IASG meeting (14 December 2010), DG CLIMA and DG MOVE noted that the aim of the meeting was to “collect comments on it [the draft IA for the 2011 Transport White Paper] prior to its submission to the Impact Assessment Board [IAB]” (DG CLIMA and DG MOVE

2010: 1). Here, I detect the empirical fingerprint ‘structured consultation’ (“collect comments” on IA drafts) – this corresponds to the structured interaction account (necessary fingerprint). Moreover, for the first IASG meeting (23 October 2010) DG MOVE, DG CLIMA and DG ENER had prepared a “joint contribution”. The aim was to set out a “common strategy” (DG MOVE et al. 2010: 1). In this case, the joint contribution did not identify the different actors or DGs. Here, I detect the empirical fingerprint ‘internal decision by research actors or rather stakeholders’ (preparation of “joint contribution”) – this corresponds to the social construction accounts (necessary fingerprint). During the last IASG meeting (14 December 2010), the Secretariat-General noted that there is a “need to allow more time for other DGs to analyse and comment on the document [the IA draft]” (DG CLIMA and DG MOVE 2010: 3). Here, I detect the empirical fingerprint ‘structured consultation’ (“more time ... to analyse and comment on .. document”) – this corresponds to the structured interaction account (necessary fingerprint).

To sum up, the Commission’s practices – for this step (IA preparation by the IASG) – correspond to the structured interaction account and to the social construction accounts. And, the discussions on this step also correspond to structured interaction account (with ‘V.i. reflection’ and with ‘V.ii. critique’), and to the social construction accounts (with ‘V.i. reflection’).

The **second step** consisted of the review of the IA by the IAB.

The IAB met once to discuss the IA for the 2011 Transport White Paper (on 26 January 2011) (IAB 2011 - 1). The annual report of the IAB for 2011 (Commission 2012) listed “Anne Bucher, John Farnell ... , Georg Fischer and Timo Mäkelä” as members of the IAB and the Deputy Secretary-General Marianne Klingbeil as chair of the IAB (6). The members were at the time Directors at DG Information Society and Media (DG INFSO), DG Enterprise and Industry (DG ENTR), DG Employment, Social Affairs and Inclusion (DG EMPL), and DG Environment (DG ENV) respectively. The IAB issued two opinions on the IA [comprising the draft IA (DG MOVE 2010 - 4) and a summary of this, as submitted by DG MOVE as the lead DG] – with opinions issued on 28 January 2011, and issued shortly after that on 2 February 2011. The first IAB opinion was issued after the IAB meeting (26 January 2011). It rejected the IA, asking DG MOVE to resubmit a revised IA (IAB 2011 - 2: 1). The second opinion approved the IA provided that “improvements” are made (IAB 2011 - 3: 1). The second opinion was not issued after an IAB meeting, but was issued after a “written procedure” (IAB 2011 - 3: 3). The IAB opinions did not identify actors or IAB members. DG MOVE produced

revised draft IAs (and summaries of these) after receiving the first IAB opinion, and after receiving the second IAB opinion, respectively (DG MOVE 2011 - 2; DG MOVE 2011 - 3).

Here, I detect the empirical fingerprint ‘internal decision by research actors or rather stakeholders’ (IAB members produced IAB opinions not identifying actors) – this corresponds to the social construction accounts (necessary fingerprint). Moreover, I here detect the empirical fingerprint ‘external decision by policy worker’ (DG MOVE selected IAB comments for IA revisions) – this corresponds to the structured interaction account (necessary fingerprint).

To sum up, the Commission’s practices – for this step (IA review by the IAB) – correspond to the structured interaction account and to the social construction accounts.

In this fourth cluster of steps in the making of the 2011 Transport White Paper (IA preparation and IA review), I – then – identify the production of the joint contribution by DG MOVE, DG CLIMA and DG ENER (in first step) as the key novel policy work instance.<sup>35</sup>

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<sup>35</sup>

Novel instance (as social construction accounts), but not sufficient fingerprint.

## 5.6. Fifth cluster – Inter-Service Consultation with Adoption

The fifth and last cluster of steps in the making of the 2011 Transport White Paper encompassed one step only – the ISC with subsequent adoption. This step took place between 21 February 2011 and 28 March 2011. This fifth cluster of steps therefore followed the fourth cluster of steps (that took place between 20 December 2010 and 2 February 2011).

DG MOVE, as the lead DG, launched the ISC on 21 February 2011 (DG MOVE 2011 - 4: 1). DGs were given fifteen days or twelve working days to respond to the ISC (until 7 March 2011) (DG MOVE 2011 - 4: 2). The consultation period was therefore slightly shorter than the required fifteen working days. The ISC documents included a cover note, the draft White Paper (Communication) and a draft Working Document (first drafts), as well as a revised draft IA (and summary of this) (DG MOVE 2011 - 4; DG MOVE 2011 - 5; DG MOVE 2011 - 6; DG MOVE 2011 - 3). In this case, the Working Document complements the White Paper. Indeed it has the same title, and the introduction to the Working Document states “this White Paper” (DG MOVE 2011 - 6: 7). All DGs, then, issued positive opinions (6 DGs, including the Legal Service) or positive opinions with comments (22 DGs, including the Secretariat-General). Thus 28 DGs responded to the ISC, of a total of 33 DGs (Commission 2011 - 6). DGs outlined amendments to the documents in their responses, and in some cases also proposed specific amendments to the documents (13 DGs) (by attaching revised versions of the documents, with changes tracked, to their responses). DG MOVE, subsequently, produced a revised version of the White Paper and of the other documents.

Moreover, this revised version of the White Paper and of the other documents were addressed during a Special Chef meeting on 16 March 2011, as well as during a Hebdo meeting on 21 March 2011 (SG 2011 - 1; SG 2011 - 2). DG MOVE, then, produced a revised version of the White Paper and of the other documents. These documents were the final version of the documents adopted by the College, and published on 28 March 2011 – White Paper (Commission 2011 - 1) and Working Document (Commission 2011 - 7), as well as the IA (Commission 2011 - 8) and the summary of this. Here, I detect the empirical fingerprint ‘structured consultation’ (DG MOVE consulted DGs on ISC documents) – this corresponds to the structured interaction account (necessary fingerprint). Moreover, I here detect the empirical fingerprint ‘external decision by policy worker’ (DG MOVE selected ISC comments by DGs for document revisions) – this corresponds to the structured interaction account (necessary fingerprint). And, I here detect the empirical fingerprints ‘active interaction of the actors’ and ‘internal decision by research actors or rather stakeholders’

(discussions during the Special Chef meeting and during the Hebdo meeting, as well as decision on additional document revisions) – these correspond to the social construction accounts (necessary fingerprint).

In their responses to the ISC, various DGs noted the length of the ISC documents, and that “apart from the draft Impact Assessment, all other documents in the ISC are new ... and have not been consulted previously” (DG ENV 2011: 1; DG COMP 2011: 1; DG EMPL 2011: 1). This made it difficult for DGs to respond to the ISC by the deadline set by DG MOVE (DG EMPL 2011: 1). The DGs therefore called for a “longer deadline for comments” (DG COMP 2011: 1). More generally, one DG noted that “given the extremely high relevance of Research and Innovation ... [it] regrets the lack of prior consultation during the drafting of the White Paper on Transport, in the spirit of the working modalities agreed between DG MOVE and DG RTD” (DG RTD 2011: 1). Here, I detect the empirical fingerprint ‘structured consultation’ (“longer deadline for comments” and “lack of prior consultation”) – this corresponds to the structured interaction account (necessary fingerprint).

To sum up, the Commission’s practices – for this step (ISC with adoption) – correspond to the structured interaction account and to the social construction accounts. And, the discussions on this step also correspond to the structured interaction account (with ‘V.ii. critique’). But, the discussions on this step do not correspond to the social construction accounts.

In this fifth and last cluster of steps in the making of the 2011 Transport White Paper (ISC with adoption), I – then – identify the preparation of the final versions of the documents (by DG MOVE, as well as during the Special Chef meeting and during the Hebdo meeting) as the key novel policy work instance.<sup>36</sup>

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<sup>36</sup>

Novel instance (as social construction accounts), but not sufficient fingerprint.

## 5.7. Commission's specific practices

Above, I have identified five clusters of **formal steps** and twelve **policy work instances** throughout the making of the 2011 Transport White Paper. A key novel policy work instance was – then, also – identified for each cluster of formal steps, as well as other policy work instances were identified, where applicable. The five clusters of formal steps and the instances (key novel and other instances), are summarised in **Appendix IV**.

In this case, sufficient novel fingerprints were detected for the key novel instances of some clusters (first and second cluster of steps), but not for the key novel instances of other clusters (third to fifth cluster of steps). The findings – then – again (as was the case for the general EU policy-making practices) highlight the formal consultation process (second cluster of steps), together with the first cluster of steps (focus groups and studies), as particularly noteworthy (key novel instances – sufficient fingerprints).

Moreover – as regards the other instances – in this case, these initially included both novel and traditional instances (first and second cluster of steps), then these only included novel instances (third and fourth cluster of steps), and ultimately these included a traditional instance only (fifth cluster of steps). The findings – then – again (as was the case for the general EU policy-making practices) highlight the formal consultation process and the formal IA process as noteworthy (second cluster of steps and fourth cluster of steps) – in relation to the ISC process (fifth cluster) (other instances – included novel instances, **as well as** only traditional instance). Moreover, the findings also highlight the IA process (fourth cluster of steps), together with the third cluster of steps (Commission working group), as noteworthy (other instances – only novel instances).

As regards discussions on the making of the 2011 Transport White Paper – or rather as regards **critique** of the past formal process and practices, as well as desired future formal process and practices ('V.ii. critique')<sup>37</sup> – the critique mostly differed from the practices in terms of the empirical fingerprints detected.<sup>38</sup> In this case, critique either corresponded to both novel and traditional

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As noted above, when identifying the policy work instances, only 'V.i. reflection', not critique ('V.ii. critique'), was considered.

<sup>38</sup>

policy work accounts (second cluster, first and fourth step – i.e. during the consultations), or it corresponded to traditional policy work accounts only (second cluster, second step; fourth cluster, first step; fifth cluster, only step – i.e. mostly later in the making of the White Paper).

There was – thus, notably – no clear challenge of the formal process and practices – during the consultations. And, when there was such a clear challenge of the formal process and practices this rather corresponded to the traditional policy work accounts – later in the making of the White Paper.

The making of the 2011 Transport White Paper, therefore, showed novel policy work instances throughout. At the same time, there was no clear call to strengthen these, actually the opposite – in the making of that White Paper.

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Except for third cluster, only step – with the practices and critique corresponding.

## Chapter 6 – Making of the 2011 Transport White Paper – Deliberate acceleration?

### 6.1. Overview of the analysis

To recall, the thesis addresses the overall research question to what extent did the Commission deliberately accelerate the mobility decarbonisation transition – specifically the urban people mobility decarbonisation transition – during the making of the Commission’s 2011 Transport White Paper (Commission 2011 - 1)? The thesis does so by conducting process tracing, on the basis of the above figures (**Figure 3.1.** and **Figure 3.2.**).

As noted above, I – then, to address that overall research question, **firstly** – assess the extent to which the policy outcome (the 2011 Transport White Paper) shows an instrument mix for transitions, the extent to which that mix is encompassing and balanced (answering the **first research question**).

In doing so, I – as regards the process tracing conducted for this thesis, thus – consider the dependent variable and the corresponding empirical fingerprint ‘policy instrument mix, or not’.

I – **secondly**, as also noted above – analyse the urban people mobility transition policy narratives deployed by actors and/or coalitions during the making of the 2011 Transport White Paper. I, here, initially address all the policy work instances, and subsequently address the ‘key novel instances’ and the ‘other instances’ respectively.

In doing so, I – as regards the process tracing conducted for this thesis – consider the different causal mechanism parts. This includes actors putting forward solutions and possibly forming coalitions, actors and/or coalitions putting forward combinations of narrative elements, as well as those actors and/or coalitions using narrative strategies. And, I do so in relation to the independent variable and the corresponding empirical fingerprint ‘novel policy work account, or not’.

The analysis is, in this case, based on the data gathered through content analysis, as set out in the supplementary material to this thesis. That data covers actors putting forward solutions and possibly forming coalitions, as well as actors and/or coalitions putting forward combinations of narrative elements – and is provided for each of the policy work instances throughout the making of that White Paper.

I – **thirdly**, as also noted above – analyse those findings regarding the transition policy narratives in relation to the policy outcome (the 2011 Transport White Paper) (answering the **second research question**). In addition, I analyse those findings in relation to the policy-making context (answering the **third research question**).

In doing so, I – as regards the process tracing conducted for this thesis, ultimately – make causal inference. That causal inference ultimately allows assessing the extent of the influence of the narratives deployed by actors and/or coalitions during the making of the 2011 Transport White Paper on the policy outcome (the White Paper), and allows analysing the extent to which the policy-making context shapes those narratives.

## 6.2. Policy outcome

The **policy outcome** – the 2011 Transport White Paper (Commission 2011 - 1) – showed a ‘tentative’ policy instrument mix for transitions. It encompassed all solutions - i.e. traditional environmental economics-based solutions (II.i.), as well as novel innovation studies-based solutions (II.ii.) and novel SPT-based solutions (II.iii.) – but mostly traditional solutions.

To recall, I have – for the purposes of this thesis – defined policy instrument mixes that **(1)** encompass ‘traditional’ destructive policy instruments, as well as ‘novel’ creative instruments and ‘novel’ instruments addressing the use of societal services or rather the final consumption, as well as that **(2)** are balanced across those instrument types. And, I have defined ‘fully-fledged’ instrument mixes as instrument mixes that meet criteria (1) and (2), while ‘tentative’ instrument mixes only meet criterion (1) but not criterion (2).

The traditional solutions put forward in the White Paper, in this case, included subsidies to R&D. They also included restrictions. They, moreover, included vehicles taxes, as well as infrastructure subsidies with standards and other subsidies. The traditional solutions, finally, included fuel taxes and tolls, as well as usage taxes more generally.

Five of those traditional solutions are most specific – subsidies to R&D and restrictions, as well as vehicle taxes and infrastructure subsidies.

Regarding subsidies to R&D, these are to focus on “alternative fuels for internal combustion engines” on the one hand (Commission 2011 - 1: 10). These are on the other hand to focus on “vehicle propulsion technologies”, on “electric and hydrogen fuel cell vehicles” (Commission 2011 - 1: 13 and 10). The White Paper, moreover, pointed to “demonstration projects to encourage market take-up”, with a focus on developing a “modern, efficient” transport system (Commission 2011 - 1: 12). It also, more specifically, pointed to “demonstration projects for electro mobility (and other alternative fuels) including recharging and refuelling infrastructure” (Commission 2011 - 1: 25).

Regarding restrictions, the White Paper pointed to the “replacement ... of inefficient and polluting vehicles” (Commission 2011 - 1: 25). It also, more specifically, pointed to the “gradual phasing out of ‘conventionally-fuelled’ vehicles from the urban environment” (Commission 2011 - 1: 8). Regarding vehicle taxes, the White Paper highlighted “environmental taxes” and CO<sub>2</sub>, as well as “clean vehicles”. It also, more specifically, highlighted “company car[s]”. Regarding infrastructure

subsidies, the White Paper pointed to “refuelling/recharging stations for clean vehicles” on the one hand, as well as “public transport services and infrastructure for non-motorised modes” on the other hand (Commission 2011 - 1: 27 and 13). It also, regarding standards, pointed to the “choice of construction materials” (Commission 2011 - 1: 27).

The novel solutions put forward in the White Paper included an innovation studies-based solution (II.ii.). This solution was the fostering of interactions between actors.

The White Paper pointed to the “coordination of multiple actors”, as well as to the development of an “innovation and deployment strategy for the transport sector” – with a focus on developing a “modern, efficient” transport system (Commission 2011 - 1: 12).

As regards the **draft policy outcomes**, the White Paper draft put forward by DG MOVE as consultation document for the ISC (DG MOVE 2011 - 5) also showed a tentative instrument mix, but mostly traditional solutions. And, the final amendments to the White Paper draft before its adoption by the College (Commission 2011 - 1) also showed such a tentative instrument mix.

### 6.3. Solutions and coalitions

Novel **solutions** were put forward throughout the making of the 2011 Transport White Paper. At least some actors put forward novel solutions – including innovation studies-based solutions (II.ii.) and SPT-based solutions (II.iii.) – in the context of all policy work instances or rather instances.

At the same time, these novel solutions were of minor importance. Novel solutions were put forward by actors together with traditional solutions (II.i.), with more to mostly traditional solutions – in the context of all instances, overall.<sup>39</sup>

Noteworthy exceptions<sup>40</sup>, in this case, included the instances relating to the consultations and the high-level conferences, with some actors putting forward only traditional solutions and only novel solutions respectively.<sup>41</sup> The noteworthy exceptions, in addition, included instances relating to the Commission working group, with again some actors putting forward only traditional solutions and only novel solutions respectively.<sup>42</sup> The noteworthy exceptions, moreover, included the instances relating to the preparation of the final version of the documents and relating to the ISC – with the final amendments to the IA and to the associated Working Document (former instance) encompassing traditional solutions only.<sup>43</sup>

Novel solutions were, therefore, put forward throughout the making of the 2011 Transport White Paper, but remained of minor importance. Overall actors put forward tentative instrument mixes.

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In what follows, ‘more’ refers to twice as frequent as others, or rather to two-thirds of total. And, ‘mostly’ refers to three times as frequent as others, or rather to three-quarters of total. Moreover, ‘various’ refers to half of total.

In addition, ‘overall’ refers to a larger number, and is opposed by ‘noteworthy exceptions’ or a smaller number.

<sup>40</sup>

Another exception was the instance relating to the preparation of the joint contribution for the “Impact Assessment Steering Group” (IASG) meeting, with one actor only putting forward novel solutions.

<sup>41</sup>

For instances relating to the first consultation and the first high-level conference and the instance relating to the second consultation, some actors also put forward traditional and novel solutions (not with more to mostly traditional solutions).

<sup>42</sup>

For the latter instance, actors actually exclusively put forward only traditional solutions and only novel solutions respectively.

<sup>43</sup>

In addition, for instance relating to the ISC, some actors also put forward traditional and novel solutions (not with more to mostly traditional solutions).

At the same time – when a larger number of actors (stakeholders and Commission DGs) was involved – some actors championed novel solutions by only putting forward such solutions, while other actors excluded novel solutions by only putting forward traditional solutions. Moreover, the final amendments to the IA and to the associated Working Document put forward by the lead DG (DG MOVE) constituted a final exclusion of novel solutions.

The two types of novel solution, then, cooccurred.

Both innovation studies-based solutions (II.ii.) and SPT-based solutions (II.iii.) were put forward by at least some actors – in the context of all instances, overall.<sup>44</sup> In addition, at least some of these actors put forward both innovation studies-based solutions and SPT-based solutions together – in the context of the above instances, overall.<sup>45</sup>

The two types of novel solution therefore cooccurred – at the level of instances, as well as at the level of actors. Thus, when there was an openness to novel solutions (in addition to traditional solutions), there was also an openness to both types of novel solution.

Moreover, as soon as several actors were involved, at least some actors put forward solutions together with other actors, resulting in **coalitions** (including traditional and novel coalitions) – in the context of all instances, overall. To recall, I identify traditional coalitions in relation to ‘groups’ of traditional solutions, and novel coalitions in relation to individual novel solutions.

Noteworthy exceptions, in this case, included the instance relating to the “Impact Assessment Steering Group” (IASG) meetings, with actors not putting forward novel solutions together and not putting forward traditional solutions together – i.e. not resulting novel coalitions and not resulting traditional coalitions. The noteworthy exceptions, in addition, included the instance relating to the second high-level conference, with actors indeed putting forward traditional solutions together, but not putting forward novel solutions together. The noteworthy exceptions, moreover, included

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An exception was the instance relating to the Commission working group, with one actor putting forward an innovation studies-based solution (II.ii.) only.

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An exception was the instance relating to second high-level conference, with actors putting forward only innovation studies-based solutions and only SPT-based solutions (II.iii) respectively.

the instance relating to the Commission working group, with actors not putting forward novel solutions together and not putting forward traditional solutions together.

In addition – as regards the number of solutions put forward by those coalitions – traditional coalitions put forward a higher number of solutions. This means that coalitions put forward a higher proportion of all the possible traditional solutions.

Traditional coalitions put forward up to three groups of traditional solutions (key novel instances), as well as up to five groups of traditional solutions (of the six groups of traditional solutions) (other instances). Novel coalitions only put forward one novel solution (key novel instances), as well as up to two novel solutions (of the seven novel solutions) (other instances).

Moreover, some actors were simultaneously members of a traditional coalition and of a novel coalition.

Such overlaps emerged for instances relating to the consultations and to the first high-level conference, with two and five actors concerned. In addition, such overlaps emerged for the instances relating to the Commission working group and relating to the ISC, with one and two actors concerned.

As soon as several actors were involved, coalitions, therefore, emerged. Coalitions, in particular, emerged for the dominant traditional solutions (traditional coalitions). Moreover, the number of solutions put forward was higher for traditional coalitions – especially in the context of the other instances.

And, some actors were simultaneously members of a novel coalition and of a traditional coalition – when a larger number of actors (stakeholders and Commission DGs) was involved. And, this was only the case for other instances.

To sum up<sup>46</sup>, actors throughout put forward some novel solutions (II.ii. and II.iii.), together with many traditional solutions (II.i.). Actors put forward tentative instrument mixes. A noteworthy exception were, here, the final amendments to the IA (and to the associated Working Document),

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Only results that are valid ‘overall’ – or that are valid for ‘all’ – are summarised here.

with only traditional solutions put forward by the lead DG (DG MOVE) – in the context of the instance relating to the preparation of the final version of the documents.

For the novel solutions, actors throughout put forward both innovation studies-based solutions (II.ii.) and SPT-based solutions (II.iii.) (at the level of instances, as well as at the level of actors).

Moreover, actors put forward solutions in coalitions throughout – in particular for traditional solutions, as well as in the context of the other instances. Coalitions – for these – put forward a higher number of solutions (of the possible solutions).

### 6.4.1. Combinations

Actors and/or coalitions, then, put forward the solutions in combinations of narrative elements – in the context of all instances, overall. These combinations constitute transition policy narratives or rather narratives. And, to recall, I identify the narratives put forward by coalitions, or – in the absence of such coalitions – put forward by actors.

Noteworthy exceptions, in this case, included instances relating to the consultations and the high-level conferences, with three actors and one coalition only putting forward solutions.<sup>47</sup> The noteworthy exceptions, in addition, included the instance relating to the Commission working group, with actors only putting forward solutions (all but one actor). For both of these exceptions, this concerned both actors putting forward novel solutions, as well as actors putting forward traditional solutions.

Actors and/or coalitions, therefore, deployed narratives throughout the making of the 2011 Transport White Paper. The actors and/or coalitions, then, substantiated and/or communicated the solutions to different degrees.

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Another exception was the instance relating to the preparation of the joint contribution for IASG meeting, with one actor only putting forward novel solutions.

#### 6.4.2. Combinations – Substantiation

The solutions were not consistently substantiated by the actors and/or the coalitions<sup>48</sup>, not even partially (IV. evidence) – throughout the making of the 2011 Transport White Paper.

Noteworthy cases – here, on the one hand – included the instances relating to the consultations and the high-level conferences – with no evidence put forward for these, except for limited evidence put forward for the second consultation (two coalitions only).

Noteworthy exceptions – in this case, on the other hand – included the instances relating to focus groups and studies, with only traditional solutions consistently substantiated. Noteworthy exceptions, in addition, included the instance relating to the IA review by the “Impact Assessment Board” (IAB), with both novel solutions and traditional solutions consistently substantiated.

The evidence put forward by actors was, overall, more developed for traditional environmental economics - based evidence (IV.i.) than for novel evidence – including innovation studies-based evidence (IV.ii.) and SPT-based evidence (IV.iii.). In this case, novel evidence – on the one hand – consisted of selected results of relevant analyses. Traditional evidence, on the other hand, consisted of descriptions of analyses, as well as complete results for these. Traditional evidence was, then, overall ‘fully-fledged’ – while novel evidence was overall ‘anecdotal’.

Noteworthy examples of anecdotal **novel evidence**, in this case, included the anecdotal novel SPT-based evidence (IV.iii.) put forward by the study consortium, in the context of the instance relating to the preparation of the TRANSvisions study. Regarding meanings, the study consortium emphasised the “lack of ... ‘social status factor’” of public transport, as well as the “subjective perception” of insecurity of older people using public transport (Petersen et al. 2009: 172 and 167). It also questioned equating the holidays entitlements as the “right to travel for a holiday” (Petersen et al. 2009: 166). The study consortium also referred to a “new sustainable mobility freedom concept” – beyond car ownership, and towards active travel and public transport (Petersen et al. 2009: 37). In addition, noteworthy examples of anecdotal novel evidence included novel SPT-based evidence (IV.iii.) put forward by the subgroups, in the context of the instance relating to subgroups of the Commission working group. The subgroups (thematic papers) highlighted materials and systems of practices. Regarding materials, they highlighted how “mixed ... development patterns”

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<sup>48</sup>

Hereafter I simply refer to ‘actors’, rather than to ‘actors and/or coalitions’.

and “higher density land use patterns” limit the “motorised transport demand” (Subgroups 2010: 3). Regarding systems of practices, the subgroups highlighted that interventions targeting practices should occur when other “habits” or practices change, such as “when moving into a new area, when changing job, when kids are starting school” (Subgroups 2010: 10).

Noteworthy exceptions for novel evidence, in this case, included the instance relating to subgroups of the Commission working group, with the Commission’s Joint Research Centre (JRC) putting forward fully-fledged novel innovation studies-based evidence.<sup>49</sup> The JRC (meetings documents) highlighted structure and functions of TISs. Regarding structure, JRC pointed to “subsectors” of the automotive industry – including car manufacturers and automotive suppliers (Wiesenthal et al. 2010: 8). For alternative fuels, automotive suppliers also include “battery manufacturers”, as well as “large oil companies, specialised biofuel producers or dedicated fuel cell makers” (Wiesenthal et al. 2010: 15). Regarding functions, the JRC considered total R&D investments. The JRC considered these based on public figures (Wiesenthal et al. 2010: 8). The JRC, moreover, addressed R&D investments regarding “low-carbon technologies” – such as “improvement of conventional engines, electric and hybrid vehicles, hydrogen/fuel cells and biofuels”, as well as “close-to-market” technologies and “further from market” technologies (Wiesenthal et al. 2010: 7 and 15). The JRC addressed these based on “an assessment of patents, speeches, annual reports and other indirect indications such as the turnover of business section or division or number of R&D employees by business segment etc.” (Wiesenthal et al. 2010: 12).

Furthermore, initially a base of **traditional evidence** was established through the studies (instances relating to focus groups and studies). This traditional evidence then continued to be developed throughout the making of the 2011 Transport White Paper – in the context of the instance relating to subgroups of the Commission working group, the instances relating to IA preparation and review, as well as the instances relating to the ISC. This traditional evidence was built around a set of models, and it was fully-fledged.

Noteworthy examples of such fully-fledged traditional evidence, initially, included the models put forward by the study consortium, in the context of the instance relating to the preparation of the TRANSvisions study. The study consortium addressed effectiveness through models. The models included the “TRANS-TOOLS model” and “meta-models”. The TRANS-TOOLS model – on the one

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The noteworthy exceptions, in addition, included the instances relating to focus groups and the evaluation study, with the focus groups only putting forward anecdotal traditional evidence (but, with the other actor Steer putting forward fully-fledged traditional evidence).

hand – is a “traditional transport model”, and the “most recent state-of-the-practice transport-oriented ... forecast model available at EU level” (Petersen et al. 2009: 71 and 72). The meta-model, on the other hand, is based on a “foresight approach” (Petersen et al. 2009: 72). It combines TRANS-TOOLS model results with socio-economic development scenarios. The meta-model also addresses “local transport”, while the TRANS-TOOLS model only addresses “long-distance travel” (Petersen et al. 2009: 136).

Noteworthy examples of traditional evidence, subsequently, included the models put forward by DG MOVE (IA drafts), in the context of the instance relating to the IA review by the IAB. DG MOVE addressed effectiveness and cost-effectiveness through various models, through a “modelling framework” (DG MOVE 2010 - 4: 107). This framework, in general, included the “GEM-E3 (World and Europe) model ... an applied general equilibrium model”. It “aims at covering the interactions between the economy, the energy system and the environment” (DG MOVE 2010 - 4: 132). It also included the “PRIMES model” that “simulates the response of energy consumers and the energy supply systems to different pathways of economic development and exogenous constraints”. “It ... simulates a market equilibrium solution in the European Union and its member states” (ibid.). The modelling framework, most specifically, included the “PRIMES-TREMOVE transport model” that “projects the evolution of demand for passengers and freight transport by transport mode and transport mean, based on economic, utility and technology choices of transportation consumers, and projects the derived fuel consumption and emissions of pollutants” (ibid.). The framework – in addition, again – included the “TRANSTOOLS model” that is “a European Transport Network model covering all modes of transport for passenger and freight”. “The model is used to assess the level of congestion and of accessibility and the impact of (the pricing of) transport infrastructure” (DG MOVE 2010 - 4: 133). The modelling framework also included the “TREMOVE model” that is “a policy assessment model for the emissions and environmental impact of transport”. It “is used to estimate the effects of various policy measures on transport demand, the resulting modal shifts, the vehicle stock renewal, the emissions of air pollutants and the effects on welfare” (DG MOVE 2010 - 4: 133-134).

The solutions were, therefore, not consistently substantiated.

The fully-fledged traditional evidence was eventually intermittently complemented by novel evidence – but this evidence was only anecdotal. In addition, there was an attempt to establish complementary fully-fledged novel evidence – with the JRC putting forward fully-fledged novel

innovation studies-based evidence (IV.ii.) (instance relating to the subgroups of the Commission working group). This attempt was, however, not successful.

Moreover – during consultations and high-level conferences (instances relating to the consultations and the high-level conferences) – the development of the evidence was almost completely interrupted.

### 6.4.3. Combinations – Communication

The actors at least partially set out **problems** that the solutions are to address – in the context of all instances.

In addition, actors that put forward problems, put forward both traditional mobility too inefficient problems (I.i.) and novel mobility demand too high problems (I.ii.) together – in the context of all instances, overall.

Noteworthy exceptions, in this case, included the instances relating to the consultations and the high-level conferences, with some actors putting forward only traditional problems. The noteworthy exceptions, in addition, included the instances relating to subgroups of the Commission working group and relating to the ISC – with some actors putting forward only novel problems (for former and latter) or only traditional problems (for former only). For both of these exceptions, actors mostly only put forward traditional problems. And, actors exceptionally only put forward novel problems.

Moreover, such actors putting forward one type of problem only (traditional problems (I.ii.) or novel problems (I.ii.) only) – then – overall did so within a corresponding combination – i.e. within a combination with a grounding of traditional environmental economics-based or of novel innovation studies-based and novel SPT-based solutions respectively.

Noteworthy exceptions, in this case, included the instances relating to the consultations and the high-level conferences, with actors putting forward combinations with a grounding of novel solutions, and setting out traditional problems only. The noteworthy exceptions, in addition, included the instance relating to the ISC, with again actors putting forward combinations with a grounding of novel solutions, and setting out traditional problems only.

The actors, therefore, set out both novel problems and traditional problems that the solutions are to address.

And, actors put forward novel problems in combination with traditional problems. At the same time, other actors mostly excluded novel problems – by only putting forward traditional problems. Some of these actors even excluded novel problems, while putting forward novel solutions (within combinations with a grounding of novel solutions). And, only exceptionally other actors championed novel problems – by only putting forward novel problems. They did so while putting forward novel solutions (within combinations with a grounding of novel solutions)

The actors, subsequently, did not consistently **discuss solutions and/or evidence**, not even partially – throughout the making of the 2011 Transport White Paper. This, here, includes discussions of solutions and/or evidence (V.i. reflection and V.ii. critique). This also includes discussions of undesired solutions (III.ii.), and discussions of solutions in relation to actors.

Noteworthy cases – here, on the one hand – included the instance relating to the second high-level conference, as well the instance relating to the IASG meetings – with no discussion. The noteworthy cases, in addition, included the instance relating to the Commission working group, with again no discussion.

And, noteworthy exceptions – in this case, on the other hand – included the instance relating to the preparation of the TRANSvisions study, with consistent discussion. These noteworthy exceptions, in addition, included the instances relating to the focus groups and the evaluation study, as well as the instance relating to the IA review by the IAB – with again consistent discussion.

Moreover, the actors – on the one hand – discussed traditional solutions and/or traditional evidence only, within corresponding combinations with a grounding of traditional solutions.<sup>50</sup> On the other hand, actors discussed traditional solutions and/or traditional evidence, within not corresponding combinations with a grounding of novel solutions, overall.

Noteworthy exceptions – in this case, for the latter – included instances relating to the consultations and to the first high-level conference – with two actors discussing solutions (one actor only) and evidence, as well as with four actors discussing novel solutions in relation to actors, in combinations with a grounding of novel solutions. The noteworthy exceptions, in addition, included instances relating to the IA review by the IAB and relating to the ISC – with three actors discussing solutions (one actor only) and evidence, in combinations with a grounding of novel solutions.

The actors, therefore, did not consistently discuss solutions and/or evidence – in particular not consistently in the context of the key novel instances.

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An exception was the instance relating to the second consultation, with two actors discussing solutions and novel solutions in relation to actors, within such combinations with a grounding of traditional solutions.

At the same time – when actors discussed solutions and/or evidence – they rather discussed the dominant traditional solutions and/or traditional evidence. They even did so while putting forward combinations with a grounding of novel solutions.

#### 6.4.4. Combinations – Overall

To sum up<sup>51</sup>, actors put forward combinations of narrative elements or rather deployed narratives throughout.

Actors, then, only intermittently substantiated the solutions. In this case, the **evidence** was traditional environmental economics-based evidence (IV.i.) and fully-fledged. It was built around a set of models. It was first established then continuously developed – but not during the consultations and the high-level conferences (instances relating to the consultations and the high-level conferences).

A noteworthy exception was, here, fully-fledged novel innovation studies-based evidence (IV.ii.) put forward by the Commission’s Joint Research Centre (JRC) (in the context of the instance relating to subgroups of the Commission working group, a key novel instance). This attempt to establish complementary fully-fledged evidence was, however, not successful.

Actors, moreover, set out both novel mobility demand too high **problems** (I.ii.) and traditional mobility too inefficient problems (I.i.) throughout.

Actors, finally, only intermittently **discussed solutions and/or evidence**. Actors, in particular, discussed solutions and/or evidence in the context of the other instances. In this case, actors rather discussed the dominant traditional solutions and/or traditional evidence.

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Again, only results that are valid overall – or that are valid for all – are summarised here.

#### 6.4.5. Most specific – Solutions, evidence and problems

Actors ‘fleshed out’ solutions (II.), as well as evidence (IV.) and problems (I.), to different degrees. I, then, identified the most specific for each of these elements – and this separately for each instance.

Those most specific for the different narrative elements, then also, together constitute ‘most specific combinations with a grounding of novel solutions’ and/or ‘most specific combinations with a grounding of traditional solutions’. In addition, it is also possible to identify recurring most specific for the three different elements.

Both **most specific combinations** with a grounding of novel solutions and most specific combinations with a grounding of traditional solutions emerged – in the context of all instances, overall.

Noteworthy exceptions, in this case, included the instances relating to the second high-level conference and relating to the preparation of the final version of the documents, as well as relating to the IA review by the IAB – with only a most specific combination with a grounding of traditional solutions identified. The noteworthy exceptions, in addition, included the instance relating to the Commission working group, with no most specific combination identified.

The **most specific combinations with a grounding of traditional solutions** included solutions (II.), as well as evidence (IV.) and problems (I.) – in the context of the relevant instances, overall.

Noteworthy exceptions, in this case, included instances relating to the consultations and the high-level conferences, with the most specific combinations not including evidence.

And, the **most specific combinations with a grounding of novel solutions** included only solutions (II.), as well as problems (I.) – in the context of the relevant instances, overall.<sup>52</sup>

In this case, more most specific combinations with a grounding of novel solutions did not include evidence (IV.) – in the context of the instances relating to focus groups and the evaluation study, relating to the consultations and to the first high-level conference, as well as relating to relating to

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An exception was the instance relating to the preparation of the TRANSvisions study – with the most specific combination with a grounding of novel solutions including solutions, as well as evidence and problems.

the ISC. Noteworthy exceptions, in this case, included the instances relating to the Commission working group, and relating to the IASG meetings – with the most specific combinations with a grounding of novel solutions not including problems.

Most specific combinations with a grounding of novel solutions and most specific combinations with a grounding of traditional solutions, therefore, emerged – in particular most specific combinations with a grounding of traditional solutions. In this case, most specific combinations with a grounding of traditional solutions included the three narrative elements, while most specific combinations with a grounding of novel solutions only included solutions and problems.

The **recurring** most specific novel **solutions** were – then, in the context of the key novel instances – the fostering of interactions between actors (innovation studies-based solution – II.ii.) (most prevalent), as well as land-use policies (SPT-based solution – II.iii.) (more prevalent). Moreover – in the context of the other instances – these were again fostering of interactions between actors but also land-use policies (SPT-based solution – II.iii.) (most prevalent). These were also targeted subsidies to R&D (innovation studies-based solution – II.ii.), as well as the development of competences and reshaping of meanings (SPT-based solution – II.iii.) (more prevalent).

The recurring, most specific ‘groups’ of traditional solutions (II.i.) were – in the context of the key novel instances – infrastructure subsidies with standards or other subsidies (most prevalent), as well as subsidies to R&D and restrictions (more prevalent). Moreover – in the context of the other instances – these were, again infrastructure subsidies with standards or other subsidies (most prevalent), as well as again subsidies to R&D (more prevalent).

The recurring most specific novel solutions, then, coincided between key novel instances and other instances, overall – with fostering of interactions between actors (innovation studies-based solution – II.ii.) and land-use policies (SPT-based solution – II.iii.). An exception was, in this case, additional most specific novel solutions for other instances.

The recurring most specific groups traditional solutions – then, also – coincided between key novel instances and other instances, overall – with infrastructure subsidies with standards or other subsidies, and subsidies to R&D and restrictions. An exception was, in this case, an additional most specific group for key novel instances.

The **recurring**, most specific novel **evidence** – in the context of the key novel instances – addressed functions (innovation studies-based evidence – IV.ii.).

The recurring, most specific traditional evidence (IV.i.) – in the context of the key novel instances – addressed (cost-)effectiveness, through models (most prevalent). It also addressed externalities (more prevalent). Moreover – in the context of the other instances – this again addressed (cost-)effectiveness (most prevalent), through models (more prevalent).

The recurring most specific traditional evidence, then, coincided between key novel instances and other instances, overall – with (cost-)effectiveness, through models. An exception was, in this case, additional most specific evidence for key novel instances.

The **recurring**, most specific novel **problems** were – in the context of the other instances – alternatives for practices / lifestyles (most prevalent).<sup>53</sup>

The recurring, most specific traditional **problems** were – in the context of the key novel instances – alternatives for vehicles (most prevalent). Moreover – in the context of the other instances – these were alternatives for the transport system (most prevalent).

The recurring most specific traditional problems, then, only broadly coincided between key novel instances and other instances – with both alternatives, though with different foci.

The recurring most specific, therefore, coincided between key novel instances and other instances. With additional most specific in the context of key novel instances.<sup>54</sup>

And, there were – thus, also – dominant most specific solutions, evidence and problems – although less so in the context of key novel instances, and more so in the context of other instances.

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For problems, only most prevalent – not more prevalent – considered.

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An exception were novel SPT-based solutions (II.iii.).

#### **6.4.6. Narrative strategies – Using combinations**

Actors only put forward anecdotal not fully-fledged novel evidence – including anecdotal innovation studies-based evidence (IV.ii.) and anecdotal SPT-based evidence (IV.iii.). Here, I observe ‘broad stability and concentrated change’, with anecdotal novel evidence put forward alongside fully-fledged traditional evidence. This observation, then, corresponds to the narrative strategy ‘containment’ (as defined above).

At the same time, one actor – the Commission’s Joint Research Centre (JRC) – notably put forward fully-fledged novel innovation studies-based evidence (IV.ii.) (in the context of the instance relating to subgroups of the Commission working group, a key novel instance). Here, I observe ‘change’. This observation, then, corresponds to the narrative strategy ‘expansion’ (again as defined above).

Moreover, actors ‘tentatively’ set out both novel mobility demand too high problems (I.ii.) and traditional mobility too inefficient problems (I.i.). Here, I observe ‘broad stability and concentrated change’, with novel problems put forward alongside traditional problems. This observation, then, corresponds to the narrative strategy containment.

At the same time, some actors notably put forward only novel problems – within combinations with a grounding of novel solutions. Here, I observe ‘change’. This observation, then, corresponds to the narrative strategy expansion.

#### 6.4.7. Narrative strategies – Using comments

Actors discussing solutions and/or evidence<sup>55</sup> at least partially provided detailed ‘**comments**’ – in the context of the relevant instances, overall.<sup>56</sup>

The actors providing comments, at least partially provided comments **on solutions and/or evidence** (V.i. reflection and V.ii. critique) – in the context of the relevant instances, overall.<sup>57</sup> Of these comments on solutions and/or evidence, most were – then – comments on evidence, rather than comments on solutions.

The actors providing comments, did not consistently provide comments **on undesired solutions** (III.ii.) – in the context of the relevant instances. Noteworthy cases, in this case, included the instance relating to the preparation of the TRANSvisions study, with no comments on undesired solutions. In addition, the noteworthy cases included the instances relating to the IA review by the IAB and relating to the ISC, with again no comments on undesired solutions.

The actors providing comments, did not provide comments **on solutions in relation to actors** though.

The comments **on evidence**, then, correspond to the narrative strategies expansion and containment.

The comments correspond to containment only – for the instances relating to the preparation of the TRANSvisions study, and relating to the IA review by the IAB. In addition, the comments more to mostly correspond to expansion – for the instances relating to subgroups of the Commission working group, as well as relating to the second consultation and relating to the ISC. And, the comments correspond to expansion only – for instances relating to the first consultation and the first high-level conference.

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This – here, again – includes discussions of solutions and/or evidence (V.i. reflection and V.ii. critique). This also includes discussions of undesired solutions (III.ii.), and discussions of solutions in relation to actors.

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An exception was the instance relating to the preparation of the final version of the documents, with no comments provided by actors.

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An exception were the instances relating to focus groups and the evaluation study, with actors providing comments on undesired solutions as such (III.ii.) only.

Most actors putting forward combinations with a grounding of novel solutions, then, employed the narrative strategy expansion. This was also the case for all actors putting forward combinations with a grounding of traditional solutions.

Noteworthy examples of comments on evidence corresponding to the narrative strategy containment were, in this case, put forward by the study consortium and by DG MOVE.

In the context of the instance relating to the preparation of the TRANSvisions study – regarding traditional evidence (IV.i.) – the study consortium explained the meta-model. It explained that the meta-model “provide[s] a bridge between qualitative and quantitative approaches” (Petersen et al. 2009: 102). The meta-model is based on a “mixing [of] paradigms” (Petersen et al. 2009: 71). In this case, the aim is “not to be ‘correct’”. Rather, the aim is to “encourag[e] discussion” (Petersen et al. 2009: 71). This “innovative ... approach” then contrasts with “the tools of much transport policy formulation [that] are (by tradition) quantitative (such as most assessment and modelling techniques) ... [and show] a tendency to omit factors that do not fit into a quantifiable framework” (Petersen et al. 2009: 71 and 178). Here, I observe ‘broad stability and concentrated change’ – with the study consortium discussing the traditional evidence (IV.i.) meta-model only, yet also emphasising the innovativeness of some of its aspects (“mixing [of] paradigms”).

In addition, in the context of the instance relating to the IA review by the IAB – regarding evidence – DG MOVE explained that “given the nature of the White Paper as a strategic document ... it is outside the scope of the ... Impact Assessment [IA] ... to evaluate each single initiative in detail”. This will rather be done “at a later stage, following a more specific analysis and an individual Impact Assessment [IA]” (DG MOVE 2010 - 4: 25). Regarding traditional evidence (IV.i.), DG MOVE – then in the same context, on the one hand – explained that “modelling is meant to ... giving evidence on their relative importance, on the way they interact and on the required intensity of the intervention” (ibid.). In this case, the “specification” of the initiatives that is made, “does not necessarily correspond to what would actually be proposed at a later stage” (ibid.). On the other hand, DG MOVE explained that the “modelling results are global and tentative, and present the impacts as illustrations rather than as conclusive evidence to support the preferred option” (DG MOVE 2011 - 2: 50). DG MOVE then explained that – considering this absence of “precise specifications on concrete proposals”, as well as “the high uncertainty surrounding the long time horizon and the inherent modelling limitations” – “requires treating the modelling results with caution” (ibid.). Here, I observe ‘stability’, with DG MOVE discussing the traditional evidence (IV.i.) models, as well as downplaying the importance of the analysis and of its results (not “conclusive evidence”).

Moreover, noteworthy examples of comments on evidence corresponding to the narrative strategy expansion were, in this case, put forward by DGs and by stakeholders.

In the context of the instance relating to subgroups of the Commission working group – regarding traditional evidence – DG CLIMA, pointed to ownership and usage (DG TREN 2010 - 2: 4). And, DG ECFIN also pointed to “rebound effect or modal shift”. It also noted that “complementary analysis” is needed to address these (DG TREN 2010 - 2: 4). DG MOVE other Units also pointed to “modal choice” (ibid.). And, the JRC pointed to “location choices”, and noted that these “are extremely complex and based on a number of factors which it is difficult to compute” (DG MOVE 2010 - 5: 3). The JRC (meetings documents) also called for additional innovation studies-based evidence (IV.ii.). It called for such additional evidence “beyond the analysis of financial support to transport research [by different actors], ... [evidence] to include an assessment of institutional capacities, policies and measures and their use and interplay ... , as it is done in the concept of the Innovation System [TIS]” (Wiesenthal et al. 2010: 7). Here, I observe ‘broad change and concentrated stability’ – with the DGs calling for other evidence [including innovation studies-based evidence (IV.ii.)], challenging the existing traditional evidence (IV.i.) to different degrees (“complementary analysis”, to “difficult to compute”, to additional evidence).

In addition, in the context of the instance relating to the second consultation – regarding evidence – ACEA called for “the full impact of future legislation in the transport sector ... [to] be properly assessed during policy formulation within the Commission” (ACEA 2009 - 2: 5). Similarly, ERF called for “future transport strategies and policies ... to be based on correct facts and figures” (ERF 2009 - 2: 1). And – regarding traditional evidence, and cost-effectiveness and cost-benefit analysis, as well as models and studies – FIA noted that “a proper assessment of the so-called external costs [by the Commission] is outstanding [and that] ... an internalisation without a cost-benefit analysis is a non-sense”. It also noted that “the study on which the Commission bases its policy proposals is [thus] merely a compilation of research results without proper and critical assessment” (FIA 2009: 5). Here, I observe ‘broad change and concentrated stability’ – with the stakeholders calling for additional evidence (“properly assessed”, “correct facts and figures”), only partially addressing traditional evidence (IV.i.) (“cost-benefit analysis”).

The comments **on undesired solutions**, then, correspond to the narrative strategy ‘stymied progress story’ and ‘story of decline’. I – here, based on the above definitions of those narrative strategies – define the story of decline as ‘decline due to GHG emissions, with decarbonisation

needed to avoid the climate change crisis'. And, I define the stymied progress story as 'society having been changing for the better (economy etc.)', and 'decarbonisation interference now threatening this progress'.

The comments correspond to story of decline only – for the instance relating to subgroups of the Commission working group. In addition, the comments correspond to both story of decline and stymied progress story – for instances relating to focus groups and the evaluation study. And, comments correspond to only to mostly stymied progress story – for the instances relating to the consultations and to the first high-level conference.

More actors putting forward a combination with a grounding of novel solutions, then, employed the narrative strategy story of decline. At the same time, actors putting forward a combination with a grounding of traditional solutions, employed both the narrative strategy stymied progress story and the narrative strategy story of decline.

Noteworthy examples of comments corresponding to the narrative strategy stymied progress story were, in this case, put forward by stakeholders.

In the context of the instance relating to the second consultation, Centrum für Europäische Politik opposed "industrial policy in relation to the fostering of certain technologies in the transport sector" – which could include the traditional solutions vehicle subsidies or infrastructure subsidies. It argued that "as far as these [certain] technologies actually have economic potential in the future it is precisely the private investors who will recognise this" and take the risk. It is "not clear why the taxpayer should take the risk". There is also "the danger that distortion of competition might be at the expense of non-subsidised technology developments" (Centrum für Europäische Politik 2009: 3).

FIA opposed the traditional solutions vehicles taxes and usage taxes, as well as restrictions – as they "lead to a loss of welfare without the expected benefits for mobility and quality of life" (FIA 2009: 2). IRU opposed the traditional solutions vehicles taxes and usage taxes, as "ever-increasing road transport taxes and charges harm the EU's free movement of people and goods, [and] impair its competitiveness with regard to other regions of the world" (IRU 2009: 13). Mobility for Prosperity in Europe also opposed vehicles taxes and usage taxes, as these are based on a "weak methodology of assessing negative externalities while leaving the positive externalities out of scope ... damag[ing] the European welfare on the long term" (Mobility for Prosperity in Europe 2009: 3). As for the summary report, economic stakeholders also opposed the traditional solutions vehicles taxes and usage taxes, as "there is a considerable risk that there will be no added value and that ... [the

solutions] will lead to distortions of competition between the different transport modes” (DG TREN 2009 - 7: 8).

ACEA opposed the traditional solution vehicle standards – as this “will only increase the overall costs, make vehicles more expensive per se and delay new vehicle purchase”, as well as “lead to unnecessary, harmful, market fragmentation” (ACEA 2009 - 2: 4 and 7). ACEA also opposed the traditional solution restrictions (“access”), as this will “cause grave difficulties for motorists in their daily mobility” (ACEA 2009 - 2: 7). EPTO also opposed restrictions (“accelerated replacement vehicles”) and opposed the traditional solution infrastructure subsidies with standards (“new fuel supply distribution infrastructure”) – as these are “unaffordable” (EPTO 2009: 9).

Here, I observe ‘decarbonisation interference threatening progress’ – with the stakeholders highlighting ‘threats’ to competition and to the market (market fragmentation), to competitiveness and to welfare, as well as to EU free movement and to ‘daily mobility’.

Moreover, noteworthy examples of comments corresponding to the narrative strategy story of decline were, in this case, put forward by DGs.

In the context of the instance relating to subgroups of the Commission working group, DG CLIMA opposed the traditional solution infrastructure subsidies that do not contribute to decarbonisation (DG MOVE 2010 - 6: 4). DG MOVE other Units, more broadly, opposed any subsidies that do not contribute to decarbonisation (DG MOVE 2010 - 6: 4). Moreover, DG ECFIN opposed infrastructure subsidies, as these lead to a “traffic increase” (DG MOVE 2010 - 7: 3). It also opposed the traditional solution vehicle taxes – including ownership and circulation – and rather called for the traditional solution tolls, as these account for the distance driven (DG MOVE 2010 - 6: 4).

Here, I observe ‘decarbonisation needed to avoid the climate change crisis’ – with the DGs calling for ‘better’ solutions for decarbonisation, in terms of the positive and/or negative effects on decarbonisation.

Actors, therefore, provided detailed comments when discussing solutions and/or evidence (V.i. reflection and V.ii. critique) – in particular in the context of other instances. They did so specifically for evidence. And, actors putting forward combinations with a grounding of novel solutions rather employed the narrative strategy expansion. This was also the case for all actors putting forward combinations with a grounding of traditional solutions.

In addition, actors provided comments when discussing undesired solutions (III.ii.), but only intermittently – though still in particular in the context of other instances. And, actors putting

forward combinations with a grounding of novel solutions rather employed the narrative strategy story of decline. While actors putting forward combinations with a grounding of traditional solutions rather employed both the narrative strategy stymied progress story and the narrative strategy story of decline.

#### 6.4.8. Narrative strategies – Using characters

Actors did not directly identify villains (III.iii.), but discussed **undesired solutions** (III.ii.) required for identifying villains – during the making of the 2011 Transport White Paper.

Actors did not consistently discuss such undesired solutions (III.ii.), not even partially – throughout the making of the 2011 Transport White Paper.

Noteworthy exceptions, in this case, included the instance relating to subgroups of the Commission working group, with a discussion of undesired solutions. Noteworthy exceptions, in addition, included instances relating to focus groups and the evaluation study, as well as instances relating to the consultations and to the first high-level conference, with again a discussion of undesired solutions. Noteworthy exceptions, moreover, included the instance relating to the ISC, with again a discussion of undesired solutions.

Actors, then, exclusively discussed undesired traditional solutions – in the context of the above instances (in the context of the above noteworthy exceptions).

Moreover, actors consistently discussed the undesired traditional solutions within combinations with a grounding of novel solutions, at least partially – in the context of the above instances. At the same time, actors did not consistently discuss the undesired traditional solutions within combinations with a grounding of traditional solutions, not even partially – in the context of the above instances. Noteworthy cases – for combinations with a grounding of traditional solutions – included the instances relating to the first consultation and the first high-level conference, and relating to the ISC, with undesired traditional solutions not discussed within the combinations with a grounding of traditional solutions.

Moreover, actors directly identified **heroes** (III.i.), discussing solutions in relation to actors.

Actors did not consistently identifying heroes (III.i.), not even partially – throughout the making of the 2011 Transport White Paper. Noteworthy exceptions, in this case, included the instances relating to the consultations and to the first high-level conference, with a discussion of solutions in relation to actors.

Some actors, then, only assigned traditional solutions to different heroes. Other actors assigned both traditional solutions and novel solutions to different heroes.

Moreover, more to most actors identified heroes within combinations with a grounding of novel solutions, and not within combinations with a grounding of traditional solutions. And, for combinations with a grounding of novel solutions, most actors assigned both traditional solutions and novel solutions to different heroes. In this case, the novel solutions were initially only assigned to the MSs, and not to the EU (in the context of the instance relating to the first consultation and the first high-level conference). Subsequently, the novel solutions were assigned to the MSs, to the EU, or to both (more to the EU) (in the context of instance relating to the second consultation).

Furthermore, the relevant actors either discussed undesired solutions (III.ii.), or they identified heroes (III.i.) – in the context of the above instances, overall. A noteworthy exception was, in this case, the instance relating to the second consultation, with four actors discussing both undesired solutions, and discussing solutions in relation to actors.<sup>58</sup> In this case, actors mostly did so within combinations with a grounding of novel solutions.

Actors – therefore, on the one hand – only discussed undesired traditional solutions (III.ii.), indirectly identifying villains (II.iii.). They rather did so within combinations with a grounding of novel solutions. Actors – on the other hand – discussed only traditional solutions, or both traditional solutions and novel solutions, in relation to actors [identifying heroes (III.i.)]. They rather did so within combinations with a grounding of novel solutions, and in this case rather assigned both traditional solutions and novel solutions to heroes. And, actors in this case also initially assigned the novel solutions to only MSs, then they rather assigned these to the EU.

These observations, then, correspond to the narrative strategies ‘devil shift’ and ‘angel shift’ (as defined above). Actors putting forward novel solutions, rather highlighted undesired traditional solutions put forward by villains. This corresponds to the narrative strategy devil shift. In addition, actors putting forward novel solutions, rather assigned novel solutions alongside traditional solutions to different heroes. In this case, actors initially assigned the novel solutions to only MSs, then they rather assigned these to the EU. This corresponds to the narrative strategy ‘angel shift’.

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Another exception were the instances relating to the first consultation and the first high-level conference, with one actor discussing both undesired solutions, and discussing solutions in relation to actors.

Actors employed these narrative strategies in the context of other instances, overall<sup>59</sup> – in particular the instances relating to the consultations and to the first high-level conference.

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An exception was the instance relating to subgroups of the Commission working group.

#### 6.4.9. Narrative strategies – Overall

To sum up<sup>60</sup>, actors – substantiating solutions (IV. evidence) – employed the narrative strategy containment (anecdotal novel evidence, and fully-fledged traditional evidence). They did so in the context of all instances. A notable exception was the employment of the narrative strategy expansion (fully-fledged novel evidence) by the JRC. It did so in the context of a key novel instance. In addition, actors – setting out problems (I.) that the solutions are to address – employed the narrative strategy containment [novel problems (I.ii.) alongside traditional problems (I.i.)], within both combinations with a grounding of traditional solutions and within combinations with a grounding of novel solutions. They did so in the context of all instances. A notable exception was the employment of the narrative strategy expansion by actors (only novel problems), within combinations with a grounding of novel solutions. They again did so in the context of all instances.

Actors provided detailed comments on evidence (V.i. reflection and V.ii. critique) – in particular, in the context of other instances. Actors then – using comments on evidence, and within both combinations with a grounding of novel solutions and combinations with a grounding of traditional solutions – then employed the narrative strategy expansion [beyond current traditional environmental economics-based evidence (IV.i.) – challenging traditional evidence to different degrees]. Still, the lead DG (DG MOVE) (directly, or indirectly<sup>61</sup>) employed the narrative strategy containment [only current traditional evidence (IV.i.)].

In addition, actors provided comments on undesired traditional solutions (III.ii.) – in particular, in the context of other instances. Actors then – using comments on undesired traditional solutions, and within combinations with a grounding of novel solutions – employed the narrative strategy story of decline (‘decarbonisation needed to avoid the climate change crisis’).

Furthermore, actors – using characters, and within combinations with a grounding of novel solutions – employed the narrative strategies devil shift [highlighting undesired traditional solutions (III.ii.)] and angel shift [assigning both traditional solutions and novel solutions, to heroes (III.i.) – to MSs then rather to the EU]. They did so, in particular, in the context of other instances.

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Again, only results that are valid overall – or that are valid for all – are summarised here.

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Indirectly, through the consortium of a study that DG MOVE commissioned and that it reviewed.

## 6.5. Policy outcome, policy narratives and policy-making context

As noted above, the **policy outcome** – the 2011 Transport White Paper (Commission 2011 - 1) – showed a tentative instrument mix for transitions. It encompassed all solutions - i.e. traditional solutions, as well as novel innovation studies-based solutions (II.ii.) and novel SPT-based solutions (II.iii.) – but mostly traditional solutions.

From the outset in the making of the 2011 Transport White Paper, actors<sup>62</sup> put forward some novel **solutions**, together with more to mostly traditional solutions. This continued to be the case throughout the making of the White Paper. This finding **corresponds** to the policy outcome – it corresponds to a tentative instrument mix for transitions (some novel solutions, together with more to mostly traditional solutions). And, this occurred in the context of all instances. At the same time – when a larger number of actors (stakeholders and Commission DGs) was involved – some actors championed novel solutions by only putting forward such solutions, while other actors excluded novel solutions by only putting forward traditional solutions. This finding **does not correspond** to the policy outcome – it rather corresponds to a fully-fledged instrument mix for transitions (novel solutions championed **and** novel solutions excluded). And, this occurred in the context of all instances. In addition, the final amendments to the IA and to the associated Working Document put forward by the lead DG (DG MOVE) constituted a final exclusion of novel solutions. This finding **corresponds** to the policy outcome – it corresponds to traditional solutions being dominant (final exclusion of novel solutions). And, this in particular occurred in the context of the key novel instances.

Moreover, there was a co-occurrence of novel innovation studies-based solutions (II.ii.) and novel SPT-based solutions (II.iii.). This finding **confirms** that it was appropriate to consider innovation studies-based solutions and SPT-based solutions together as ‘novel solutions’. And, this occurred in the context of all instances.

As soon as several actors were involved, at least some actors put forward solutions together with other actors, resulting in **coalitions**. This was in particular the case for traditional coalitions. And, such traditional coalitions also put forward a higher number of solutions (of the possible solutions).

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I here go back to referring to ‘actors’ only, not to ‘actors and/or coalitions’.

These findings **correspond** to the policy outcome – it corresponds to a tentative instrument mix (novel coalitions and traditional coalitions, with rather the latter), as well as corresponds to traditional solutions being dominant (higher proportion of the solutions put forward by traditional coalitions). And, this in particular occurred in the context of the other instances. Moreover – when a larger number of actors (stakeholders and Commission DGs) was involved – some actors were simultaneously members of a novel coalition and of a traditional coalition. This finding **corresponds** to the policy outcome – it corresponds to a tentative instrument mix (simultaneous membership of novel coalitions and of traditional coalitions). And, this in particular occurred in the context of the other instances.

Actors and/or coalitions<sup>63</sup>, then, put forward **combinations** of narrative elements – constituting narratives or transition policy narratives.

The actors, in this case, substantiated and/or communicated the solutions to different degrees. Solutions were intermittently substantiated (IV. evidence), as well as communicated throughout. Communication, here, included setting out problems (I. problems) and discussions of solutions and/or evidence [including, in turn, discussions of solutions and/or evidence (V.i. reflection and V.ii. critique), as well as discussions of undesired solutions (III.ii.), and discussions of solutions in relation to actors].

Actors – substantiating solutions (IV. evidence) – employed the **narrative strategy** containment [anecdotal novel evidence (IV.ii. and IV.iii.), and fully-fledged traditional evidence (IV.i.)]. This finding **corresponds** to the policy outcome – it corresponds to a tentative instrument mix (anecdotal novel evidence, alongside fully-fledged traditional evidence). And, this occurred in the context of all instances. At the same time, the Commission’s JRC employed the narrative strategy expansion [fully-fledged novel innovation studies-based evidence (IV.ii.)]. This finding **does not correspond** to the policy outcome – it rather corresponds to a fully-fledged instrument mix (fully-fledged novel evidence **and** fully-fledged traditional evidence). And, this in particular occurred in the context of the key novel instances.

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Hereafter I – again – simply refer to ‘actors’, rather than to ‘actors and/or coalitions’.

Actors – setting out problems (I.) that the solutions are to address – employed the narrative strategy containment [novel problems (I.ii.) alongside traditional problems (I.i.)]. This finding **corresponds** to the policy outcome – it corresponds to a tentative instrument mix (novel problems alongside traditional problems). And, this occurred in the context of all instances. At the same time, actors employed the narrative strategy expansion (only novel problems), within combinations with a grounding of novel solutions . This finding **does not correspond** to the policy outcome – it rather corresponds to a fully-fledged instrument mix (only novel problems within combinations with a grounding of novel solutions **and** only traditional problems within combinations with a grounding of traditional solutions). And, this occurred in the context of all instances.

Actors – providing comments on evidence (V.i. reflection and V.ii. critique) – employed the narrative strategy expansion [beyond current traditional environmental economics-based evidence (IV.i.) – challenging traditional evidence to different degrees], within both combinations with a grounding of novel solutions and within combinations with a grounding of traditional solutions. At the same time, the lead DG (DG MOVE) – directly or indirectly – employed the narrative strategy containment (only current traditional evidence). These findings **correspond** to the policy outcome – they correspond to a tentative instrument mix (expansion challenging traditional evidence to different degrees within both combinations with a grounding of novel solutions and within combinations with a grounding of traditional solutions, **as well as** containment of current traditional evidence). And, this in particular occurred in the context of the other instances.

Moreover, actors – providing comments on undesired traditional solutions (III.ii.) – employed the narrative strategy story of decline (‘decarbonisation needed to avoid the climate change crisis’), within combinations with a grounding of novel solutions. This finding **corresponds** to the policy outcome – it corresponds to a tentative instrument mix [story of decline within combinations with a grounding of novel solutions, **as well as** both story of decline and stymied progress story (‘decarbonisation interference threatening progress’) within combinations with a grounding of traditional solutions]. And, this in particular occurred in the context of the other instances.

Actors – using undesired traditional solutions (III.ii.), and assigning solutions to heroes (III.i.) – employed the narrative strategies devil shift (highlighting undesired traditional solutions) and angel shift (assigning both novel and traditional solutions), within combinations with a grounding of novel solutions. And, in this case, actors initially tentatively assigned the novel solutions to only MSs, then they rather assigned these to the EU. This finding **corresponds** and **does not correspond** to the policy outcome – it corresponds to a tentative instrument mix [‘angel shift’ for both novel and

traditional solutions, **as well as** novel solutions assigned to MSs (does correspond to policy outcome)], as well as rather corresponds to novel solutions becoming dominant [devil shift for traditional solutions, **as well as** novel solutions assigned to the EU (does not correspond to policy outcome)]. And, this in particular occurred in the context of the other instances.

Actors ‘fleshed out’ solutions (II.), as well as evidence (IV.) and problems (I.), to different degrees – leading to the emergence of ‘most specific combinations with a grounding of traditional solutions’ and of ‘most specific combinations with a grounding of novel solutions’ – in particular most specific combinations with a grounding of traditional solutions. And, in this case, most specific combinations with a grounding of traditional solutions included all narrative elements, while most specific elements with a grounding of novel solutions included only solutions and problems. These findings **correspond** to the policy outcome – it corresponds to a tentative instrument mix (traditional solutions fleshed out to greater extent). And, this occurred in the context of all instances.

The findings, therefore, correspond to the policy outcome – overall, and in particular in the **context** of all instances, or in context of the other instances.

Noteworthy exceptions, in this case, include findings pointing to a fully-fledged instrument mix – with novel solutions championed **and** novel solutions excluded (in context of all instances), with fully-fledged novel evidence **and** fully-fledged traditional evidence (in context of the key novel instances), as well as with only novel problems within combinations with a grounding of novel solutions **and** only traditional problems within combinations with a grounding of traditional solutions (in context of all instances). Noteworthy exceptions, in addition, include novel solutions becoming dominant – with devil shift for traditional solutions, as well as novel solutions assigned to the EU (in context of the other instances).

Causal inference can then be made on the basis of the above findings.

The findings suggest that the causal mechanism (deployment of policy narratives) indeed acted between independent variable (policy-making context) and the dependent variable (policy outcome) – in the making of the 2011 Transport White Paper (Commission 2011 - 1). In this case, the deployment of narratives (causal mechanism) in particular points to a tentative instrument mix and traditional solutions being dominant. This, then, occurred in particular in the context of the other policy work instances (independent variable), and resulted in the policy outcome tentative

instrument mix (dependent variable). Other instances – during the making of the 2011 Transport White Paper – initially included both novel and traditional instances, then only included novel instances, and ultimately – importantly – only included traditional instances (as noted above).

## 6.6. Conclusions

It is, then, possible to answer the research questions on the basis of the above findings.

The findings suggest that the Commission only to a certain extent deliberately accelerated the urban people mobility decarbonisation transition during the making of the Commission's 2011 Transport White (Commission 2011 - 1) – with the instrument mix put forward by the Commission in that White Paper only being tentative (**first research question**). Moreover, the findings of this thesis suggest that the deliberate acceleration was, in this case, impeded by shallower incumbency associated with the Commission – with the narratives deployed by actors and/or coalitions during the making of the White Paper influencing the policy outcome in the direction of a tentative instrument mix (**second research question**). Furthermore, the findings of this thesis suggest the deliberate acceleration was, in this case, impeded by deeper incumbency associated with the Commission – with the policy-making context shaping the narratives deployed by actors and/or coalitions, in particular the other policy work instances (**third research question**).

The Commission, therefore, only to a certain extent deliberately accelerated the urban people mobility decarbonisation transition during the making of the White Paper, as a result of being impeded by shallow and deep incumbency associated with it (**overall research question**).

A particularly noteworthy set of findings regarding the making of the White Paper, here, relates to the substantiation of solutions (IV. evidence).

This includes the relevant findings that **correspond** to the policy outcome (correspond to a tentative instrument mix) – with anecdotal novel evidence alongside fully-fledged traditional evidence, and with expansion challenging traditional evidence to different degrees within both combinations with a grounding of novel solutions and within combinations with a grounding of traditional solutions as well as containment of current traditional evidence (in context of all instances, and in context of the other instances, respectively). At the same time, this includes a relevant finding that **does not correspond** to the policy outcome (rather corresponds to a fully-fledged instrument mix) – with fully-fledged novel evidence and fully-fledged traditional evidence (in context of the key novel instances).

In this case, the key novel instance provided for a fully-fledged instrument mix, rather than just for tentative instrument mix (all instances and other instances). The key novel instance, therefore,

provided an opportunity for deliberately accelerating the urban people mobility decarbonisation transition.

In fact, this key aspect of the substantiation of solutions was addressed in the final Commission-internal discussion on the White Paper.

During the Special Chef meeting on 16 March 2011, the relevant heads of Cabinet “reiterated the rule according to which no technology should be favoured over another” (my translation from French – “le rappel de la règle selon laquelle il convient de ne privilégier aucune technologie par rapport à une autre”) (SG 2011 - 1: 3). At the same time, the heads of Cabinet “noted a significant mismatch between the White Paper objectives ... and the proposed initiatives, insufficient according to some” (my translation from French – “le constat du décalage important entre les objectifs du livre blanc ... et les initiatives proposées, insuffisantes aux yeux de certains”) (ibid.). ‘Technology neutrality’, in this case, corresponds to traditional environmental economics-based evidence (IV.i.). The heads of Cabinet statement reiterating the ‘rule’ of technology neutrality, then, points to traditional evidence being dominant – which the findings of this thesis indeed suggest. At the same time, the heads of Cabinet appear (at least partially) to recognise the remaining need to accelerate the decarbonisation transition. Interestingly, the reasons for this shortcoming are not discussed further in this context.

The following could, then, deliberately accelerate the urban people mobility decarbonisation transition.

Actors indeed already discussed evidence during the development of the White Paper (expansion challenging traditional evidence to different degrees within both combinations with a grounding of novel solutions and within combinations with a grounding of traditional solutions, as well as containment of current traditional evidence) – though these discussions were not far-reaching enough. They were not far-reaching enough notably due to the lead DG (DG MOVE) excluding such more far-reaching discussions. This suggests that a substantiation (IV. evidence) for a fully-fledged instrument mix could, **firstly**, be achieved by ensuring the support of the lead DG for more far-reaching discussions. This support, in turn, could be facilitated by the Commission’s Secretariat-General – playing an increasingly important role in EU policy-making, during the IA process and during the ISC. That would address the shallower incumbency associated with the Commission. A substantiation for a fully-fledged instrument mix could, **secondly**, also be achieved by strengthening the (Commission-internal) key novel instances – in the context of which fully-fledged novel evidence was put forward during the making of the White Paper. That would address the

deeper incumbency associated with the Commission. At the same time, the actors' critique of the past formal process and practices (V.ii. critique), rather pointed to traditional policy work accounts. This suggests that strengthening the (Commission-internal) key novel instances could be challenging.

## Chapter 7 – Conclusions

### 7.1. Research contributions – Transition studies

As noted above, transition scholars have – **firstly**, in empirical studies – explored **policy instrument mixes for transitions**.

To recall, I have – for the purposes of this thesis – defined instrument mixes for transitions as encompassing and balanced across instrument types. And, in terms of instrument types, I have identified ‘traditional’ destructive environmental economics-based policy instruments, as well as ‘novel’ creative innovation studies-based instruments and ‘novel’ SPT-based instruments addressing the use of societal services or rather the final consumption.

Kern et al. (2017) found “use ... ‘full toolbox’ of available instruments” (22). They also noted that the policy mixes balance differed between the two countries studied – “while in the UK there has also been a lot of ‘churn’ in policy instruments, Finland has had a somewhat more stable policy environment, where the added policies have not as radically altered the mix” (ibid.).

In addition, Schmidt and Sewerin (2019) found that “policy mixes’ balance is rather high” (7). They also noted that policy mix balance was stable – during “major additions of new policy instruments” and during “major subtraction of policy instruments” (ibid.).

At the same time, Kivimaa and Kern (2016) – on the one hand – found “fewer policy instruments directly tackling regime destabilisation (D-functions) than niche support (C-functions)” (214). Though it is important to note that Kivimaa and Kern (2016) considered “market formation” instruments – such as “regulation” and “market-based policy instruments” – as ‘creative’ instruments (208). In addition, Schmidt and Sewerin (2019) – on the other hand – found “strong variance” regarding technology specificity – over time and between countries (10). Though “while there is large variance of intensity on the four technology-specificity tiers, the analyzed countries do not seem to favor specific technologies at the technology tier” (ibid.).

Furthermore, Lindberg et al. (2019) found that “most policies fall in the ‘Centralized-RES pathway’ quadrant”, which corresponds to a high ‘degree of sustainability’ and low ‘degree of disruption’. They also found that “the majority of actors – and especially many influential ones – prefer” such a

low ‘degree of disruption’ (Lindberg et al. 2019: 12). Though at the same time “there are also many actors with strong preferences” for a high ‘degree of disruption’ (ibid.).

Transition scholars have, thus, identified instrument mixes for transitions (Kern et al. 2017; Schmidt and Sewerin 2019).

At the same time, transition scholars considered the different types of instruments, and identified technology neutral instruments and low disruption instruments or rather traditional destructive instruments as dominant (Schmidt and Sewerin 2019; Lindberg et al. 2019). A notable exception is, here, the study by Kivimaa and Kern (2016), which identified novel creative instruments as dominant – though their definition of such instruments differed from the definition of such instruments used in this thesis.

This thesis found that the policy outcome – the 2011 Transport White Paper (Commission 2011 - 1) – showed a tentative policy instrument mix for transitions. It encompassed all solutions – i.e. traditional environmental economics-based solutions, as well as novel innovation studies-based solutions and novel SPT-based solutions – but mostly traditional solutions.

The thesis’ findings, then, reflect at least some of the existing transition research. Though it is important to note here that the approaches to studying instrument mixes have varied – as outlined above.

Future research on this issue should, ultimately, follow a more consistent approach to studying instrument mixes for transitions. This thesis – with its definition of instrument mixes for transitions, based on considerations stemming from transition studies – provides a contribution in this regard. And, such future research should in particular address the extent of the contribution of novel instruments to balanced instrument mixes – which appears to be the limiting factor in the deliberate acceleration of transitions.

Moreover, future research on this issue should move beyond the precautionary argument for instrument mixes, and assess the actual relative contribution of different instrument types to the deliberate acceleration of transitions.

As also noted above, transition scholars have – **secondly**, in empirical studies – explored beliefs or narratives and advocacy coalitions. They, thus, explored **shallower incumbency** associated with public authorities.

To recall, I have – for the purposes of this thesis – defined a coalition as actors sharing the content of the narrative element solution only, and then defined ‘tradition coalitions’ and ‘novel coalitions’. In addition, this thesis considers a minimum of two narrative elements – solution and any other element – as required for constituting a policy narrative. It then considers ‘combinations’ of two or more narrative elements, as well as possible narrative strategies. As regards strategies, this thesis has, in particular, focused on the strategies ‘containment’ and ‘expansion’ put forward by NPF scholars, which chime with the two strategies ‘fit and conform’ and ‘stretch and transform’ identified by transition scholars.

Kern (2012), then, found that “a coalition of business actors and civil servants promoted a ‘developing low carbon technology’ storyline which emphasised the necessity of having an independent, business-led organisation to promote energy efficiency and the development of low carbon technologies by recycling receipts from the climate change levy” (99). That storyline was “institutionalised in the Carbon Trust [and] is closely connected to the dominant market efficiency discourse and is rather complementary than in conflict with this discourse (exception: technology-specific support is in conflict with existing discourse)” (ibid.).

In addition, Markard et al. (2016) found “... two coalitions: A larger group of key actors (“pro-economy”) tend to give priority to low energy prices and rather oppose regulatory intervention, while a smaller group of actors (“pro-ecology”) highlight the importance of environmental and climate protection and the necessity of public policies toward these goals” (230). They also found that “several pro-economy actors agree with essential aspects of the proposal such as more support for renewables and nuclear phase-out, although they display otherwise conservative policy core beliefs” (Markard et al. 2016: 231).

And, Lazarevic and Valve (2017) found that “the circular economy is anthropomorphised into a hero by its promoters, which will save the environment at the same time as stimulating the economy and create European jobs” (66). They also found that “strategies for the actualisation of the perfect cycle ... cause the greatest conflict” (67). In this case, “intermediaries and NGOs appear to use a stretching and transforming strategy emphasising the necessity of radical change to production and consumption systems”, as well as “incumbent-firm alliances follow a fitting and conforming

strategy underscoring the need for circular economy ‘niches’ to be competitive according to the incumbent regime criteria” (67).

Moreover, Hess (2019) found that “as the organizational composition of the pro-CCA coalition changed ...” – “from core support anchored in consumer groups and progressives ... to a large network” – “... the institutionalization of community choice as a model of local democracy and its capacity to create jobs became more prominent in the framing strategies than consumer price benefits” (48). And, he found that “the values of distributive justice (in the anti-CCA coalition with its emphasis on fairness in pricing) and procedural justice and democracy (in the pro-CCA coalition with its emphasis on the need for more democratic and accountable decision-making) are paired off by the opposing coalitions” (ibid.).

Furthermore, Haukkala (2018) found that “differences in core beliefs [of the actors in the ‘green-transition coalition’] were apparent first and foremost in relation to the actual energy transition, especially in attitudes towards nuclear power and bioeconomy” (152). She also found that the coalition “has become an active participant in the public debate and a relevant actor in energy political decisions”, as well as was able to achieve “visible policy changes” (154).

Transition scholars have, thus, considered differences and similarities in beliefs or narratives between coalitions. They have observed limited differences between the emerging coalition and the dominant coalition, or rather the use of a fit and conform strategy by the emerging coalition (Kern 2012). And, they have also observed similarities between the dominant coalition and the emerging coalition, or rather the use of a fit and conform strategy by the dominant coalition (Markard et al. 2016; Lazarevic and Valve 2017). In addition, transition scholars have observed a clear difference between the emerging coalition and the dominant coalition, or rather the use of a stretch and transform strategy by the emerging coalition (Lazarevic and Valve 2017). Moreover, transition scholars have, then, considered parallel changes in differences and similarities between the dominant and the emerging coalitions (Hess 2019).

Furthermore, transition scholars have considered differences and similarities in beliefs or narratives within coalitions (Haukkala 2018).

This thesis only considered differences and similarities in narratives between coalitions.

The thesis found that in particular traditional **coalitions** were formed as soon as several actors were involved. Those traditional coalitions, then, put forward a higher number of solutions (of the possible solutions). Traditional coalitions were, therefore, dominant.

The thesis – then, as regards substantiation – found that traditional actors and/or coalitions provided fully-fledged corresponding evidence, while novel actors and/or coalitions only provided anecdotal evidence. Novel actors and/or coalitions therefore used a fit and conform strategy. At the same time, some novel actors and/or coalitions did provide fully-fledged corresponding evidence. Novel actors and/or coalitions, therefore, also used a stretch and transform strategy.

The thesis – in addition, as regards the communication of solutions and evidence, and actors and/or coalitions putting forward issues that the solutions are to address – found that traditional and novel actors and/or coalitions put forward novel problems alongside traditional problems, and therefore used a fit and conform strategy. At the same time, some novel actors and/or coalitions did only put forward novel problems. Novel actors and/or coalitions therefore also used a stretch and transform strategy.

The thesis – moreover, as regards the communication of solutions and evidence, and actors and/or coalitions putting forward ‘comments’ on evidence – found that traditional and novel actors and/or coalitions challenged traditional evidence to different degrees. They therefore used a stretch and conform strategy. At the same time, the lead DG (DG MOVE) as traditional actor, also highlighted traditional evidence. It therefore used a fit and conform strategy.

The thesis’ findings, then, reflect the existing empirical transition research. They do so in terms of emerging coalitions using a fit and conform strategy but also a stretch and transform strategy (for evidence, for problems, as well as for comments on evidence). In addition, they do so in terms of dominant coalitions using a fit and conform strategy (for problems, as well as for comments on evidence).

Yet, the thesis also identified the use of a stretch and transform strategy by dominant or rather traditional actors and/or coalitions for comments on evidence. That could be a reaction to the more fundamental challenge of traditional evidence by the emerging or rather novel actors and/or coalitions. Such a reaction or rather parallel change would also reflect the existing empirical transition research. And, in any case, the use of a stretch and transform strategy by dominant or rather traditional actors and/or coalitions is counterbalanced by the simultaneous use of a fit and conform strategy by those actors and/or coalitions.

As also noted above, transition scholars have – **thirdly**, in empirical studies – explored transition conflicts. They – thus, **again** – explored **shallower incumbency** associated with public authorities. To recall, as regards strategies, I have – for the purposes of this thesis – considered the narrative strategies that NPF scholars have referred to most – including ‘devil shift’ and ‘angel shift’, ‘expansion’ and ‘containment’, as well as ‘story of decline’ and ‘stymied progress story’. And, the thesis has in particular focused on the strategies containment and expansion, which chime with the two strategies ‘fit and conform’ and ‘stretch and transform’ identified by transition scholars.

Kern (2012), as noted above, found that the emerging “‘developing low carbon technology’ storyline ... is closely connected to the dominant market efficiency discourse and is rather complementary ... with this discourse” (99). Though there is a noteworthy exception to this – “technology-specific support is in conflict with existing discourse” (ibid.).

In addition, Raven et al. (2016) found that “whilst evidence reveals attempts to stretch-and-transform throughout the entire case study periods, fit-and-conform has been the dominant narrative” (177). Though some actors “employed both fit-and-conform and stretch-and-transform strategies equally” (ibid.).

Moreover, Rosenbloom et al. (2016) found that “most storylines take on a largely fit-and-conform character” (1285). Though “upon closer examination, ... storylines embody both stretch-and-transform as well as fit-and-conform orientation” (ibid.). In this case, “storylines may in one sense take on a fit-and-conform character to better correspond with familiar patterns (and consequently enhance their resonance), but in an equally fundamental sense tacitly seek to change selection environments” (ibid.).

In addition, Bosman et al. (2014) found that “while some develop narratives that allow for combining these storylines in the making with the dominant one, others start to fundamentally question the dominant storyline” (55). They also found that “disagreements and conflicts emerge around more concrete concepts such as the energy market, or government intervention towards achieving the overarching goal, such as the coal tax” (Bosman et al. 2014: 56).

Transition scholars have, thus, considered differences and similarities in storylines or narratives. Transition scholars have found variation in the degree to which emerging storylines or narratives correspond to (or differ from) dominant storylines – from “rather complementary” to “fundamentally question” (Kern 2012: 99; Bosman et al. 2014: 56). Most storylines or narratives –

in this case – show a fit and conform strategy, though there are exceptions to this (Raven et al. 2016; Rosenbloom et al. 2016). Those findings are in line with the above transition research findings regarding differences and similarities in beliefs or narratives between coalitions.

In addition, transition scholars have found that the degree of correspondence (or difference) then varies between the aspects of transition conflicts – “storylines embody both stretch-and-transform as well as fit-and-conform orientation” (Rosenbloom et al. 2016: 1285). Transition scholars, then, highlighted the need to analyse those transition conflict aspects – such as discussions regarding “technology-specific support”, as well as discussions regarding “government intervention” (Kern 2012: 99; Bosman et al. 2014: 56).

This thesis’ findings regarding differences and similarities in narratives between coalitions, as outlined above, are also relevant in this context. Those findings relate to different aspects of the conflict over the (deliberate acceleration of the) urban people mobility decarbonisation – including evidence, problems, as well as ‘comments’ on evidence.

The thesis – then, also – considered other aspects of that conflict, relating to the communication of solutions and evidence – including further comments on evidence and characters.

As regards comments on evidence, the thesis found that novel actors and/or coalitions used the strategy ‘story of decline’ (defined here as ‘decarbonisation needed to avoid climate change crisis’) and traditional actors and/or coalitions used that strategy and the strategy ‘stymied progress story’ (defined here as ‘decarbonisation interference threatening progress’).

As regards characters, the thesis found that novel actors and/or coalitions used the narrative strategy ‘devil shift’ (highlighting undesired traditional solutions) and angel shift (assigning both novel and traditional solutions to first to MS then to the EU).

The thesis’ findings regarding differences and similarities in narratives between coalitions, then, reflect the existing empirical transition research regarding differences and similarities in storylines or narratives.

In addition, the thesis’ findings also go beyond the existing research in considering further conflict aspects, and strategies relating to these. In this case, the use of the strategy story of decline by novel actors and/or coalitions contributes to their use of the strategy stretch and transform. And, the use of the the strategy story of decline and stymied progress story by traditional actors and/or coalitions contributes to their use of the strategy fit and conform. Moreover, the use of the strategy devil shift for traditional solutions by novel actors and/or coalitions contributes to their use of the strategy stretch and transform. And, the use of the strategy angel shift for both traditional and

novel solutions by novel actors and/or coalitions contributes to their use of the strategy fit and conform.

Future research on this issue should, ultimately, consider further differences and similarities between the dominant and emerging narratives. In addressing such further specific aspects of transition conflicts, future research could then also identify associated 'substrategies', under the broad strategies of fit and conform and stretch and transform. This thesis – in considering further transition conflict aspects and associated strategies – provides a contribution in this regard.

In addition, such future research should also take into account existing transition research regarding beliefs or narratives and advocacy coalitions – as set out above.

As also noted above, transition scholars have – **fourthly**, in empirical studies – explored structures emerging from the micro-politics of transition processes. They, thus, explored **deeper incumbency** associated with public authorities.

To recall, I have – for the purposes of this thesis – defined 'traditional policy work instances' (fingerprints corresponding to the 'traditional' authoritative choice account or structured interaction account or rather 'traditional fingerprints' detected) and 'novel policy work instances' (fingerprints corresponding to the 'novel' social construction accounts or rather 'novel fingerprints' detected). The thesis – then, also – identified 'key novel policy work instances', as well as 'other policy work instances' (including other novel instances, and including traditional instances).

Andrews-Speed (2016) differentiated between "open access and limited access social orders", as well as between "a market-oriented, regulatory state paradigm" and a "state-centred paradigm" (222). He also differentiated between a "number of institutional entrepreneurs" and actors "rarely able to engage in policy deliberation and design" (222-223).

And, Chilvers and Longhurst (2016) differentiated – regarding "enrolment and mediation", in participation – inter alia between "centralized institutional" and "distributed/citizen-led" (599).

They also differentiated – regarding "model of participation" – inter alia between "invited-deliberative/professionally facilitated" and "uninvited-discursive/autonomous-horizontal" (ibid.).

In addition, Kern (2012) highlighted that "generic ... prescriptions need to be adjusted to particular institutional contexts and strategically tied to either dominant or emerging discourses and institutional norms to be successful" (101). In this case, "promot[ing] ... policy and institutional changes ... in line with dominant or emerging discourses", "helps to recruit powerful actors to these

storylines and makes them less threatening” (ibid.). And, in this case, being “in conflict with dominant discourses and institutional commitments”, allows “radical restructuring of socio-technical systems”, but also “run[s] the risk of ... ‘being stuck in the niche’” (ibid.).

Moreover, Kuzemko et al. (2016) highlighted “ordoliberalism and ... social democracy”, as well as “PR voting system” (102). In this case, “these sets of ideas allow for a ‘strong state’ and a more active role for government actors in determining socio-economic outcomes”, as well as the “voting system has allowed not only for greater Green representation ..., but it has also required political actors to co-ordinate with other important groups within government coalition” (102).

And, Lockwood et al. (2017) highlighted “PR in electoral institutions; ... the retention of a degree of control over regulators by democratic institutions; ... rules for keeping some ... data in the public domain; ... fewer and weaker veto opportunities for incumbents opposed to change” (326). In this case, these “institutional arrangements ... give a stronger voice for those in favour of change, and ... give governments a greater capability to bring about change” (326).

In addition, Johnstone and Stirling (2020) highlighted – regarding “general national political institutions and elite culture” – “decentralised, proportional representation, strong green party, minority parties, ‘consensus building’, more deliberative” (19). They also highlighted – regarding “qualities of national democracies” – “‘consensual’” (ibid.). In this case, these “enable ... serious questioning of the reasoning behind incumbent policy commitments”, as well as “enable ... [a] multifaceted struggle” (Johnstone and Stirling 2020: 17).

Transition scholars have, thus, differentiated between various context characteristics (Andrews-Speed 2016; Chilvers and Longhurst 2016; Kern 2012). They have – then, on the one hand – not identified context characteristics not impeding or fostering the deliberate acceleration of transitions. On the other hand, transition scholars have highlighted such characteristics not impeding or fostering the deliberate acceleration of transitions (Kuzemko et al. 2016; Lockwood et al. 2017; Johnstone and Stirling 2020). Those latter studies have then highlighted coordination between actors, as well as deliberation or consensus and empowering actors.

This thesis highlighted key novel instances as not impeding or fostering the deliberate acceleration of transitions.

Those findings, then, reflect the existing empirical transition research regarding structures emerging from the micro-politics of transition processes. The fingerprints for both of the novel social construction accounts, in this case, include ‘active interaction of actors’ (necessary

fingerprint). In addition, the fingerprints for the conflictual social construction account include ‘selection of research actors or rather stakeholders, by policy workers – with also excluded voices’ (necessary fingerprint), as well as the fingerprints for the deliberate social construction account include ‘internal decision by research actors or rather stakeholders – with consensus of the actors’ (sufficient fingerprint). It is also worth noting here, that the initial broad orientation of the prescriptive transition management framework also corresponds to the social construction accounts.

As also noted above, transition scholars have – **fifthly** and finally, in empirical studies – to a very limited extent addressed the different deliberate transition acceleration aspects – i.e. deliberate transition acceleration by public authorities through policy instrument mixes for transitions, shallower and deeper incumbency associated with public authorities – together. They, thus, explored **shallower and deeper incumbency** associated with public authorities.

Johnstone et al. (2017) noted that the “the obduracies of high-level UK policy commitments to natural gas and nuclear power are (when contrasted with other broadly comparable countries), to some significant extent characteristic of the UK polity as a whole” (156).

Johnstone et al. (2017) have, thus, established broad conclusions regarding the interplay of the different deliberate acceleration aspects.

This thesis highlighted that deliberate acceleration was – in the case of the making of the 2011 Transport White Paper through a particular EU policy-making process involving the Commission – impeded by shallower and deeper incumbency associated with the Commission – with the policy-making context shaping the narratives deployed by actors and/or coalitions, in particular the other policy work instances. Other instances – to recall, during the making of the 2011 Transport White Paper – initially included both novel and traditional instances, then only included novel instances, and ultimately – importantly – only included traditional instances. At the same time, it – as noted above – highlighted key novel instances as not impeding or fostering the deliberate acceleration of transitions, and in doing so in particular highlighted the substantiation of solutions.

The thesis’ findings regarding the different deliberate transition acceleration aspects, then, go beyond the existing research. The thesis, in this case, considers the interplay of the different deliberate acceleration aspects, and this on the basis of causal inference through process tracing.

In doing so, the thesis did address the two research gaps that it aimed to address: Firstly, the thesis aims to respond to the call to deal with the different aspects regarding the deliberate acceleration of transitions by public authorities together. Secondly, the thesis aims to respond to the call to adopt both the transition governance perspective and the transition dynamics perspective – with this research gap mirroring the other research gap.

Future research should, ultimately, consider the interplay of the different deliberate acceleration aspects. This thesis provides a contribution in this regard.

Moreover, future research on this issue should – as also suggested above for research on instrument mixes – move beyond the precautionary argument for considering the different deliberate acceleration aspects, and assess the actual relative importance of different deliberate acceleration aspects.

## 7.2. Research contributions – EU mobility policy

EU mobility policy has been explored by a limited number of publications, in transport studies (Gössling and Cohen 2014; Gössling et al 2016; Gudmundsson et al. 2016; Holden et al. 2019; Holden et al. 2020). In addition, EU mobility policy has been explored by an even more limited number of publications, in EU studies (Dyrhaug 2013; van Lier and Macharis 2015).

Most of the EU mobility policy publications provided **characterisations or assessments** of the **content** of the Commission's 2011 Transport **White Paper** (Commission 2011 - 1) – including, in some cases, in relation to the previous Transport White Papers from 1992 and 2001 (Commission 1992; Commission 2001 - 1).

Dyrhaug (2013) noted that the 2011 Transport White Paper “emphasized technological advancements as a method to make transport more efficient”, and “did not view curbing mobility as an option” (145). In relation to the preceding White Papers, Dyrhaug (2013) – then – noted that the “Commission ... now rejected the idea of decoupling and modal shift” (145) – despite the 2001 Transport White Paper having “attempted to challenge the dominant ideas of efficiency by instead focusing on decoupling the economic growth from transport growth through rebalancing the market share between the main transport modes in favour of more environmentally acceptable railways” (146).

In addition, van Lier and Macharis (2015) noted that “the essence of the plan [the 2011 Transport White Paper] is to change oil dependency of the transport system without sacrificing its efficiency or endangering mobility” (120). They also noted that the “key points include developing and deploying new and sustainable fuels and propulsion systems; ... and increasing the efficiency of transport and of infrastructure use through information systems and market-based incentives” (ibid.).

Moreover, Gössling and Cohen (2014) noted that the White Paper “suggests that emissions from transport will decline, compared to 2008, by 60% by 2050, with an interim goal of 20% by 2030” (198). They also noted, at the same time, that the White Paper “outlines ... that ‘curbing mobility is not an option’ ... thereby putting ... objectives and measures somewhat at odds with opinion that to achieve absolute emission reductions, energy-intensive forms of mobility will have to decline” (ibid.).

In addition, Holden et al. (2019) noted that the 2011 Transport White Paper “acknowledged that ‘still, the transport system is not sustainable’” (7). At the same time, it “had no intention of picking up the transport-volume debate, and in order to leave no doubt stated that ‘curbing mobility is not an option’”. In relation to the preceding White Papers, Holden et al. (2019) – then – noted that the 1992 Transport White Paper had “an emphasis on reduced transport volume”, and “was the first time the concept of ‘sustainable mobility’ appeared on the international agenda” (5 and 1). Yet, the 2001 Transport White Paper already rather emphasised “reduction in transport intensity” (Holden et al. 2019: 5 and 7).

And, Holden et al. (2020) noted – directly in relation to the preceding White Papers – that the 1992 Transport White Paper “described an unsustainable mobility system”, and that it “did not mince words” (8). They noted that this White Paper “argued for ‘promoting fast, safe, and convenient urban and regional transport services and reducing urban car traffic’ and were even bold enough to suggest ‘the need to encourage low transport demand’” (ibid.). Holden et al. (2020), then, noted that the 2011 Transport White Paper is “a far cry from” this, “stat[ing] ... that ‘curbing mobility is not an option’” (8).

To sum up, in characterising the content of the 2011 Transport White Paper, scholars focused on the issues to be addressed – and noted that the White Paper emphasised the efficiency of mobility (Dyrhaug 2013; van Lier and Macharis 2015). Scholars also noted that an emphasis on mobility demand was rejected, with the White Paper stating that ‘curbing mobility is not an option’ (Dyrhaug 2013; van Lier and Macharis 2015; Gössling and Cohen 2014; Holden et al. 2019; Holden et al. 2020). They, then, noted that this was previously not the case – for the 1992 White Paper (Holden et al. 2019; Holden et al. 2020), or for the 2001 White Paper (Dyrhaug 2013).

The thesis, in characterising the content of the 2011 Transport White Paper, also found that the 2011 Transport White Paper showed a focus on traditional mobility too inefficient problems (I.i.), rather than on novel mobility demand too high problems (I.ii.). In fact, the White Paper showed mostly traditional mobility too inefficient problems (I.i.).

The thesis, in characterising the content of the 2011 Transport White Paper, however, primarily focused on the solutions put forward. In focusing on the solutions put forward (rather than on the issues to be addressed), the thesis provides a characterisation of the Transport White Paper that is ultimately more appropriate for considering the impact of the White Paper in terms of the deliberate acceleration of the mobility decarbonisation transition.

Moreover, in assessing the content of the 2011 Transport White Paper, Gössling and Cohen (2014) noted that its objectives and the proposed measures are ‘at odds’. This reflects the thesis’ finding that the 2011 Transport White Paper only showed a ‘tentative’ policy instrument mix for transitions. And, this reflects the assessment of the Transport White Paper by the heads of Cabinet, during the Special Chef meeting on 16 March 2011 – that I referred to above.

Some of the EU mobility decarbonisation policy publications (transition studies and EU studies) – subsequently, also – provided **explanations** for the **content** of the 2011 Transport **White Paper**.

Dyrhaug (2013) – as regards the focus on efficiency – stressed that “the option of restricting mobility is not available to the Commission, as free movement of persons ...is protected by the treaties” (142). She also pointed to “transport stakeholders ... not support[ing] the decoupling policy, which they saw as too restrictive and discriminatory against the modes (i.e. road ...)” (Dyrhaug 2013: 143). Though stakeholders “were not united”, with “railway stakeholders ... support[ing] ... decoupling” (ibid.).

Moreover, Gössling and Cohen (2014) pointed to “an industry-led discourse that decarbonisation is on-going on the basis of technological innovation” (204). They also stressed that “policy makers are also influenced by climate change contrarians, and car- ... lobbies, who are all engaged in considerable efforts to implement an understanding that all mobility is good, while environmental problems can be resolved largely through technology” (ibid.).

In addition, Gössling et al. (2016) stressed that “central barriers ... are partially internal, i.e. a result of poor intra- and inter-DG communication processes and a lack of agreement on common goal” – with “DG MOVE's favoring of economic goals over GHG cuts, with the latter strategically seen as the responsibility of CLIMA” (90). They also pointed to “the influence of lobbying” (Gössling et al. 2016: 91).

Furthermore, Gudmundsson et al. (2016) noted that “the modeling exercise used to underpin the strategy development focuses largely on transportation network investments, new fuel, and engine technologies, prices, and mode choice at a fairly coarse scale” (230). Thus, “since modeling tools are still very much focused on transport outcomes, they inevitably underplay the broader sustainability outcomes” – including the “stimulation of innovation” (ibid.).

To sum up, in explaining the content of the 2011 Transport White Paper, scholars pointed to the positions of stakeholders regarding the issues to be addressed – with these supporting the focus on efficiency, though with exceptions (Dyrhaug 2013; Gössling and Cohen 2014). In addition, Gössling et al. (2016) pointed to interactions between DGs – in particular between DG MOVE and DG CLIMA, with the former rather supporting ‘economic goals’.

The thesis also considered the positions of actors (of actors and/or coalitions) regarding the issues to be addressed. It, then, rather found that actors put forward traditional mobility too inefficient problems (I.i.) together with novel mobility demand too high problems (I.ii.), throughout the making of the 2011 Transport White Paper – though with exceptions (only traditional problems or only novel problems put forward).

In addition, the thesis also considered such interactions between DGs – between DG MOVE and other DGs (including DG CLIMA). I, then, similarly found disagreements between the DGs – in particular between DG MOVE and other DGs, in their detailed ‘comments’ on evidence. In this case DG MOVE used the narrative strategy ‘containment’, while the other DGs rather used the narrative strategy ‘expansion’ (as outlined above).

The thesis, however, also considered the actors’ positions regarding other aspects of transition conflicts (solutions and evidence). And, it then also considered those positions in relation to each other (in narratives) (again as outlined above).

Furthermore, Gudmundsson et al. (2016) considered the evidence used in relation the 2011 Transport White Paper, specifically the models used, and noted that that evidence was ‘underplaying sustainability outcomes’ (229). The thesis also considered evidence put forward in relation to the 2011 Transport White Paper, including the documents published alongside this (including the IA). It, however, also considered the evidence put forward beyond that and by actors other than the Commission. The thesis, then, found that traditional environmental economics-based evidence was dominant (fully-fledged evidence). Though this dominance was also exceptionally contested (fully-fledged innovation studies-based evidence). This finding – corresponding to the policy outcome of a tentative instrument mix for transitions – reflects Gudmundsson et al.’s (2016) conclusion.

Finally, these explanations provided by scholars were based on interviews with stakeholders and/or Commission staff (only some scholars – Dyrhaug 2013; Gössling et al. 2016), and ‘descriptive inference’ or rather correlation was then used for analysis. The thesis, however, provided

explanations based on document analysis, and used 'causal inference' through 'process tracing' for analysis.

### 7.3. Critical reflections

**Firstly**, the theoretical framework consisted of theory parts of the policy process theory NPF (basis of the theoretical framework), as well as theory parts from two other theories in policy studies (DI and policy work theory, complementing the basis of the theoretical framework). The theory choice was based on considerations stemming from policy studies and from transition studies.

The development of the theoretical framework, then, required reviewing three different policy studies literatures (NPF, DI and policy work theory literatures) – also in relation to each other – as well as reviewing these literatures in relation to the relevant literatures in transition studies. The literature review required for the thesis was, thus, extensive. And, the presentation of the literatures in this thesis, therefore, focused on key publications regarding these.

**Secondly**, as regards the NPF – the basis of the theoretical framework developed for the thesis – scholars have noted that “the NPF has yet to reach its goal of becoming a portable framework for analysing policy narratives” (Weible and Schlager 2014: 245). With “too many core concepts [still] need[ing] conceptual clarity” (ibid.).

In my review of the NPF literature, I have addressed this challenge by clearly defining the core concepts. Nevertheless, my definitions of the core concepts are not attempts to further develop the NPF, based on theoretical considerations. They rather present a summary of current research practice – based on recent NPF studies.

**Thirdly**, I initially defined ‘transitions’ or ‘environmental sustainability transitions’ as addressing the current environmental problems through major transformations in the supply of societal services, and/or major transformation in the use of societal services. I, subsequently, referred to ‘transitions’ throughout.

The use of the term ‘transition’ is clearly appropriate in the context of this thesis, as the thesis draws on ‘transition studies’. At the same time, I identified SPT as transition approach that addresses policy instruments, and I considered deeper incumbency. And, Stirling (2015) defined ‘transformations’ as “more diverse, emergent and unruly political alignments, challenging incumbent structures ...” (62). And, Hölscher et al. (2018) defined ‘transformations’ as “large-scale changes in whole societies” (2). This means that the use of the term ‘transformation’ might actually be more appropriate. I – nevertheless – continued using the term ‘transition’, to highlight the contributions of the thesis to transition studies.

**Fourthly,** I – for the final analysis steps – grouped analytical categories. I did so by differentiating between ‘traditional’ and ‘novel’ categories or groups of categories. I did so with regard to a narrative elements, with regard to solutions (and associated evidence). In addition, I did so with regard to the policy work accounts (and associated policy work instances). The thesis then differentiated between traditional environmental economics-based instruments as well as novel innovation studies-based and SPT-based instruments. It also differentiated between the traditional authoritative choice and structured interaction accounts as well as the novel social construction accounts.

It would have been more appropriate to consider the categories separately – also for the final analysis steps – rather than to group these. This was – however – not possible, due to the only limited resources available for analysis. And, the groupings are based on (the development of) the relevant literatures – of transition studies, transport studies, and critical policy studies, respectively.

**Fifthly,** I studied the making of the Commission’s 2011 Transport White Paper (Commission 2011 - 1), through a particular EU policy-making process involving the Commission. I noted that exploring the making of the White Paper allows studying EU mobility policy in the last decade or rather the 2010s in a comprehensive – yet also circumscribed – manner. The White Paper, in this case, set out the EU’s strategy regarding mobility for the period between 2011 and 2020, identifying all the mobility policies to be adopted in that period. At the same time, I noted that the designs of the individual policies were subsequently still subject to other, specific EU policy-making processes (‘ordinary legislative procedure’ – involving the Commission, as well as the Council or rather MSs and the European Parliament).

It would, thus, indeed have been more appropriate to consider the White Paper as well as the subsequently adopted individual policies. This was – however – not possible, due to the only limited resources available for analysis. And, the decision to refer to the White Paper for analysing the development of EU mobility policy is based on the EU mobility policy literature – as noted above.

**Sixthly,** for studying the making of the 2011 Transport White Paper, I collected documents regarding this. This included documents that are publicly available, and documents that could be requested from the Commission – under the EU regulation regarding public access to documents (Regulation (EC) No 1049/2001) (EU 2001).

Only specific documents can be requested from the Commission. It was, thus, not possible to simply ask for all relevant documents produced during the making of the 2011 Transport White Paper. I requested documents relating to formal processes (such as the IA review and the ISC). In addition, I looked for references to additional documents in the documents already available. And, I from the outset also asked for all documents referred to in the requested documents. This, for example, allowed me to obtain various documents regarding the Commission working group. It is, therefore, not guaranteed that I obtained all documents produced during the making of the 2011 Transport White Paper that are potentially requestable. But, I – through the above – limited the risk of omitting relevant requestable documents.

**Appendix I. Policy work accounts, with corresponding empirical fingerprints.**  
 With sufficient fingerprints for given account in **red**, and necessary fingerprints in **black**.

	Authoritative choice account	Structured interaction account	Social construction accounts	
			Deliberate social construction account (deliberative democracy)	Conflictual social construction account (poststructuralist political theory)
Actors	selection of one research actor <b>only</b> , by policy workers	<b>not</b> selection of research actors or rather stakeholders, by policy worker(s) - n/a	selection of research actors or rather stakeholders, by policy workers - <b>with</b> epistemic equality	selection of research actors or rather stakeholders, by policy workers - <b>with</b> also excluded voices
Interaction actors - first	n/a	<b>not</b> interaction of the actors - <b>with</b> structured consultation	active interaction of the actors - <b>with</b> dialogue between the actors	active interaction of the actors - <b>with</b> conflict of the actors
Decision - then	n/a	external decision by policy worker(s) - <b>with</b> identification of acceptable outcomes by policy worker(s)	internal decision by research actors <b>or rather</b> stakeholders - <b>with</b> consensus of the actors	internal decision by research actors <b>or rather</b> stakeholders - <b>with</b> conflictual consensus of the actors

## Appendix II – Coding frame

### Appendix II. Coding frame.

#### I. problems

##### Areas requiring improvements

- Including transport system as a whole
- Including components of the transport system

##### Plausible alternatives for the future

- Link to GHG emissions or decarbonisation **does not** need to be established
- **Except for** passenger flow, integration of modes or intermodality, and ICT or ITS
  - For these, at least link to efficiency is required

#### I.i. mobility too inefficient

#### I.ii. mobility demand too high

##### Improvements required

- Carbon intensity or energy intensity of **fuels** used by vehicles
- Fuel efficiency of **vehicles**

##### Efficiency of transport modes

- Including occupancy rate of vehicles
- Including passenger flow or capacity

Transport system

##### Alternatives

Fuels and vehicles

Transport modes

- Transport system
- Including integration of modes or intermodality

##### Improvements required

- Amount of transport
- Distance travelled

Travel need

Transport demand

Practices or lifestyles

Urban planning

##### Alternatives

Practices or lifestyles

Urban planning

Behaviour in terms of mode choice

Behaviour in terms of travel choice

II. solutions
<p><b>Specific desired solutions</b></p> <ul style="list-style-type: none"> <li>- I.e. solutions of the level of specificity set out below</li> <li>- Including existing measures to be revised</li> <li>- Not solutions to just be 'considered'</li> </ul> <p><b>Groups of solutions</b></p> <ul style="list-style-type: none"> <li>- As long as specific areas of application identified</li> </ul> <p><b>Links</b> between solutions and groups of solutions</p> <ul style="list-style-type: none"> <li>- E.g. action plans</li> </ul> <p><b>Areas of application</b> for solutions and groups of solutions</p> <ul style="list-style-type: none"> <li>- <b>But not</b> goals (objectives and targets) for these solutions</li> </ul>

II.i. environmental economics - based solutions	II.ii. innovation studies - based solutions	II.iii. SPT - based solutions
<p><b>R&amp;D subsidies</b> - Including demonstration projects subsidies</p> <p><b>Fuel standards</b></p> <p>Vehicle standards - Including fuel efficiency standards</p> <p><b>Restrictions</b> on vehicle circulation, vehicle ownership, parking etc.</p> <p><b>Taxes</b> on manufacturing (excise), purchase and ownership of vehicles</p> <p><b>Subsidies</b> to vehicles and feebates - Including public procurement.</p> <p>Specific <b>infrastructure subsidies with standards</b> - Including in relation to passenger flow, integration of modes or intermodality, and ICT or ITS</p> <p><b>Other subsidies</b></p> <p><b>Usage taxes</b> - specifically incl.</p> <ul style="list-style-type: none"> <li>- Transport taxes (transport services taxes)</li> <li>- Fuel taxes</li> <li>- Tolls - Including road pricing</li> <li>- Distance driven tax and time based tax</li> <li>- Carbon tax</li> <li>- Emissions trading</li> </ul>	<p><b>R&amp;D subsidies</b> - Including demonstration projects subsidies</p> <p><b>Interactions</b> between actors or groups of actors</p> <ul style="list-style-type: none"> <li>- Workshops</li> <li>- Road-mapping</li> <li>- Technology platforms</li> </ul>	<p>Reshaping of meanings</p> <p>Development of competences or capacities</p> <p>Spatial interventions</p> <ul style="list-style-type: none"> <li>- I.e. land-use policies</li> </ul> <p>Temporal interventions</p> <p>Fostering or development of counter-movements</p>
<p>Including deployment projects or lead market creation</p> <ul style="list-style-type: none"> <li>- <b>But</b>, this can refer to various solutions, <b>thus</b> requiring case-by-case assessment</li> </ul> <p>R&amp;D and demonstration projects subsidies for <b>categories of technologies</b></p> <ul style="list-style-type: none"> <li>- E.g. for low emissions vehicles, alternative fuels, smart mobility etc.</li> </ul>	<p><b>Targeted</b> R&amp;D and demonstration projects subsidies</p> <ul style="list-style-type: none"> <li>- I.e. targeting specific technologies and/or specific applications</li> </ul> <p><b>Training</b> in relation to R&amp;D</p>	<p><b>Training</b> in relation to practices, in relation to the development of competences</p>

**III. characters**

**Actors**  
 - People  
 - Organisations

In relation to 'II. solutions'  
 In relation to 'III.ii. undesired solutions and problems'

For guidelines etc. there can be two levels of 'III.i. heroes'  
 - In this case, include both levels

III.i. heroes	III.ii. undesired solutions and problems	III.iii. villains	III.iv. victims
Actors <b>putting forward desired solutions</b> - I.e. in relation to 'II. solutions'	Equivalent to desired solutions or 'II. solutions' - But, solutions here <b>undesired</b> - Including existing measures to be abandoned  Equivalent to 'I. problems' - But, <b>problems</b> here result of undesired solutions	Actors <b>putting forward undesired solutions</b> - I.e. in relation to 'III.ii. undesired solutions ...'	Actors <b>being harmed by undesired solutions and resulting problems</b> - I.e. in relation to 'III.ii. undesired solutions and problems'

	Include alternatives - <b>But</b> , only <b>when</b> in same sentence as undesired solutions		
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IV. evidence
<p>In relation to 'II. solutions'</p> <ul style="list-style-type: none"> <li>- I.e. in relation to solutions and areas of application</li> <li>- I.e. <b>not</b> in relation to goals</li> </ul> <p>- Forward-looking, <b>not</b> retrospective</p> <p><b>Scope</b> of analysis</p> <p><b>Evaluation criteria</b> for analysis</p> <p><b>Form</b> of analysis</p> <ul style="list-style-type: none"> <li>- Model, study etc.</li> </ul> <p>Refer to <b>description</b> of analysis or <b>representative results</b> of analysis</p>

IV.i. environmental economics - based evidence	IV.ii. innovation studies - based evidence	IV.iii. SPT - based evidence
<p><b>Market</b></p> <p><b>Externalities</b></p> <ul style="list-style-type: none"> <li>- Negative - GHG emissions etc.</li> <li>- Positive - Knowledge and adoption etc.</li> </ul> <p>- Effectiveness</p> <p>- <b>Cost-effectiveness</b></p> <p>- Cost</p> <p>- <b>Cost-benefit</b></p> <p><b>Informational requirements</b></p> <p><b>Undesired effects</b></p>	<p><b>TISs</b></p> <p><b>Structure</b></p> <ul style="list-style-type: none"> <li>- Actors</li> <li>- Institutions - hard and soft</li> <li>- Interactions</li> <li>- Infrastructure - physical, knowledge and financial</li> </ul> <p>- Required <b>changes</b>, to structure</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>- Knowledge development - R&amp;D trends and patent applications</li> <li>- Experimentation - Technologies and applications</li> <li>- Direction of search - Policies and resource mobilization</li> <li>- Resource mobilization - Financial and human resources</li> </ul> <p>- Market formation and legitimation</p> <ul style="list-style-type: none"> <li>- Cost and performance, consumer trust and infrastructure</li> <li>- Competition and policies</li> </ul> <p>- <b>Weaknesses</b> or barriers and <b>strengths</b> or drivers, in relation to functions</p>	<p><b>Practices</b></p> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- Infrastructure</li> <li>- Equipment</li> </ul> <p><b>Meanings</b></p> <p><b>Competences</b></p> <p><b>Systems of practices</b></p> <ul style="list-style-type: none"> <li>- Overlaps between practices</li> <li>- Spatial distribution and temporal sequencing of practices</li> </ul>

	<b>Infrastructure</b> in relation to market formation	<b>Infrastructure</b> in relation to a practice or practices
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V. setting
<p>In relation to <b>formal process and practices</b>            - I.e. interactive processes regarding the context (or regarding specific aspects of context) in DI</p> <p><b>And/Or</b></p> <p>In relation to <b>'II. solutions' and 'IV. evidence'</b>            - I.e. interactive processes regarding the policy conflict in DI</p>

V.i. reflection	V.ii. critique
<p><b>Description and aims of formal process and practices</b></p> <p><b>And/Or</b></p> <p><b>Reflection</b> regarding 'II. solutions' and 'IV. evidence' put forward by this actor</p> <p><b>Reactions</b>            - To 'V.ii. critique' put forward by other actors            - <b>And/Or</b>, to 'III.ii. undesired solutions and problems' put forward by other actors</p>	<p><b>Critique of past formal process and practices</b>            - Both negative and positive critique</p> <p><b>Desired future formal process and practices</b></p> <p><b>And/Or</b></p> <p><b>Critique of previous 'II. solutions' and 'IV. evidence'</b> put forward by other actors            - Both negative and positive critique</p>

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## Appendix III – Empirical material

### Appendix III. Empirical material.

Clusters of formal steps	Formal steps	All documents - With availability	Documents analysed - With explanation of selection
<b>First</b> Focus groups and studies	Evaluation study	Final report - Online  Task reports - Online	<b>Only</b> final report, <b>not</b> task reports.
	TRANVisions study	Final report and summary of this - Online  Task reports - Online	<b>Only</b> final report and summary of this, <b>not</b> task reports.
	Focus groups	Report - Online	
<b>Second</b> Consultations and high-level conferences	First stakeholder consultation	Responses - Online  Analysis of responses - Request	<p><b>Only</b> responses from certain types of stakeholders relevant:</p> <ul style="list-style-type: none"> <li>- Road transport</li> <li>- Rail transport</li> <li>- Public transport</li> <li>- Economic stakeholders</li> <li>- Research, Consulting and Academia <ul style="list-style-type: none"> <li>- Think tanks</li> <li>- Cities and Regions</li> <li>- Health communities</li> </ul> </li> </ul> <p>- <b>Only</b> European NGOs and associations. (Except for Research etc. and Think tanks) - <b>Only</b> contributions in English.  (Commission's typology of stakeholders used here)</p>
	First high level conference	Minutes of conference - Request	Participants list <b>not</b> analysed, but referred to.
	Communication	Online	
	Second stakeholder consultation	Responses - Online  Analysis of responses - Request	<p><b>Only</b> responses from certain groups of stakeholders relevant:</p> <ul style="list-style-type: none"> <li>- Cities and Regions</li> <li>- Economic stakeholders</li> <li>- Energy stakeholders</li> <li>- Environmental organisations</li> <li>- Governments and national administrations</li> <li>- Non-motorised transport</li> <li>- Public transport</li> <li>- Rail transport</li> <li>- Research</li> <li>- Road transport</li> </ul> <p>- <b>Only</b> European NGOs and associations. (Except for Research) - <b>Only</b> contributions in English. - <b>Only</b> national governments or ministries or departments.  (Commission's typology of stakeholders used here)</p>
Second high level conference	Minutes of conference - Request	Participants list <b>not</b> analysed, but referred to.	

References - For documents analysed	Number of documents	Total number of documents	Number of pages (approx.)	Total number of pages (approx.)
Steer Davies Gleave 2009	Final report - 1	1	Final report - 79	79
Petersen et al. 2009 - 1 Petersen et al. 2009 - 2	Final report and summary of this - 2	2	Final report and summary of this - 257	257
DG TREN 2009	Report - 1	1	Report - 43	43
ACEA 2009; ACEM 2009; BusinessEurope 2009; CER 2009; ECF 2009; EIM 2009; ERF 2009; Eurelectric 2009; EUROCHAMBRES 2009; EUROCITIES 2009; FIA 2009; FIEC 2009; Going-Electric 2009; IRU 2009; Mobility for Prosperity in Europe 2009; UITP 2009; UNIFE 2009	Responses - 17	17	Responses - 242	242
DG TREN 2009 - 1  DG TREN 2009 - 2 (participants list)	Conference report - 1	1	Conference report - 12	12
Commission 2009	1	1	19	19
ACEA 2009; AEGPL 2009; ASECAP 2009; AT 2009; BusinessEurope 2009; CEEP 2009; CEMR 2009; Centrum für Europäische Politik 2009; CER 2009; CZ 2009; DK 2009; EAA 2009; EARPA 2009; ECF 2009; ECTRI 2009; EHA 2009; EIM 2009; EPF 2009; EPTO 2009; ERF 2009; ETRMA 2009; Eurelectric 2009; EUROCHAMBRES 2009; FIA 2009; FIEC 2009; HU 2009; IE 2009; IET 2009; IRU 2009; Leaseurope 2009; LINK Consortium 2009; METREX 2009; Mobility for Prosperity in Europe 2009; NO 2009; SE 2009; SI 2009; SIKa 2009; T&E 2009; UITP 2009; UK 2009; UNIFE 2009; VERT Association 2009  DG TREN 2009	Responses - 44  Analysis of responses - 1	45	Responses - 509  Analysis of responses - 14	523
DG TREN 2009 - 1 DG TREN 2009 - 2  DG TREN 2009 - 3 (participants list)	Conference report - 1  Speech DG Ruete - 1	2	Conference report - 24  Speech DG Ruete - 7	31

Clusters of formal steps	Formal steps	All documents - With availability	Documents analysed - With explanation of selection
<b>Third</b> Working Group	Commission Working Group	Agendas, minutes and documents of Working Group and Subgroups meetings - Request	<p style="text-align: center;"><b>Not relevant:</b></p> <ul style="list-style-type: none"> <li>- 4 - Subgroup 2 - Meeting on 23 March 2010 (aviation and maritime transport)</li> <li>- 9 - Subgroup 4 - 25 March 2010 (long distance freight market and logistics)</li> <li>- 10 - Subgroup 4 - 29 April 2010 (long distance passenger market and logistics)</li> </ul> <p style="text-align: center;"><b>Only</b> certain thematic papers relevant:</p> <ul style="list-style-type: none"> <li>- Transport in urban and metropolitan areas</li> <li>- Climate change and environment</li> </ul>
<b>Fourth</b> Impact Assessment (IA) preparation and review	preparation of IA by Impact Assessment Steering Group (IASG)	Agendas, minutes and documents of IASG meetings - Request	Agendas of IASG meetings <b>not</b> relevant.  For revised draft IAs, <b>only</b> amendments to document.
	IA review by Impact Assessment Board (IAB)	<p style="text-align: center;">Agenda, minutes and documents of IAB hearing - Request</p> <p style="text-align: center;">IAB opinions - Request</p> <p style="text-align: center;">Final IA and summary of this - Online</p>	Agenda and minutes of IAB hearing <b>not</b> relevant.  For revised draft IAs and summaries of these, <b>only</b> amendments to documents.
<b>Fifth</b> Inter-Service Consultation (ISC)	Inter-Service Consultation (ISC)	<p style="text-align: center;">ISC Dossier - Request</p> <p style="text-align: center;">Responses of different DGs to ISC - Request</p> <p style="text-align: center;">Agenda, minutes and documents of the Special Chef meeting - Request</p> <p style="text-align: center;">Agenda, minutes and documents of the Hebdo meeting - Request</p> <p style="text-align: center;">Final White Paper - Online</p> <p style="text-align: center;">Final IA and summary of this - Online</p> <p style="text-align: center;">Final Staff Working Document - Online</p>	<p style="text-align: center;"><b>Only</b> responses of DGs to ISC with explanations.</p> <p style="text-align: center;"><b>Only</b> contributions in English.</p>

References - For documents analysed	Number of documents	Total number of documents	Number of pages (approx.)	Total number of pages (approx.)
DG TREN 2009 DG TREN 2010 - 1 DG MOVE 2010 - 1  DG TREN 2010 - 2 DG MOVE 2010 - 2 to DG MOVE 2010 - 8 Expert Group on Future Transport Fuels 2010 Nemry and Brons 2010 Wiesenthal et al. 2010  Subgroups 2010 - 1 Subgroups 2010 - 2	Working Group meetings - 3  Subgroup meetings - 11  Thematic papers - 2	16	Working Group meetings - 19  Subgroup meetings - 110  Thematic papers - 40	169
DG CLIMA 2010 DG MOVE 2010 - 1 DG CLIMA and DG MOVE 2010  DG MOVE et al. 2010  DG MOVE 2010 - 2 DG MOVE 2010 - 3	Minutes of IASG meetings - 3  Joint contribution - 1  Draft IA - 1  Revised draft IA - 1	6	Minutes of IASG meetings - 15  Joint contribution - 6  Draft IA - 34  Revised draft IA - 107	162
IAB 2011 - 1 IAB 2011 - 2  DG MOVE 2010 - 1 DG MOVE 2010 - 2 DG MOVE 2011 - 1 DG MOVE 2011 - 2	IAB opinions - 2  Draft IA and summary of this - 2  Revised IA and summary of this - 2	6	IAB opinions - 6  Draft IA and summary of this - 47 (25% of pages used here as proxy)  Revised IA and summary of this - 42 (25% of pages used here as proxy)	95
DG MOVE 2011 - 1 to DG MOVE 2011 - 5  Responses of DGs  BEPA 2011; DG CLIMA 2011; DG COMP 2011; DGT 2011; DG ECFIN 2011; EEAS 2011; DG ELARG 2011; DG EMPL 2011; DG ENER 2011; DG ENV 2011; DG ENTR 2011; EUROSTAT 2011; DG INFOS 2011; JRC 2011; DG JUST 2011; DG MARE 2011; DG MARKT 2011; DG REGIO 2011; DG RTD 2011; DG SANCO 2011; SG 2011; DG TAXUD 2011; DG TRADE 2011  Commission 2011 - 1 to Commission 2011 - 4	Cover note - 1  Communication - 1  IA and summary of this - 2  Staff Working document - 1  Responses of different DGs to ISC - 23  Attachments to responses - 14  Final White Paper - 1  Final IA and summary of this - 2  Final Staff Working Document - 1	46	Cover note - 2  Communication - 30  IA and summary of this - 46 (25% of pages used here as proxy)  Staff Working document - 126  Responses of different DGs to ISC - 82  Attachments to responses - 82 (page numbers for responses used here as proxy)  Final White Paper - 8  Final IA and summary of this - 45  Final Staff Working Document - 32 (25% of pages used here as proxy)	453
<b>Overall number of documents and pages</b>		<b>144</b>		<b>2085</b>

**Appendix IV. Policy work instances in the making of the 2011 Transport White Paper.**  
 With traditional instances (no fill), and with novel instances (red fill).

Clusters of steps		Key novel policy work instances	Other policy work instances	
<b>First cluster</b>	Focus groups and studies	preparation of the TRANSvisions study by the study consortium - novel instance	<b>initial focus</b> - focus groups - TRANSvisions study - novel instances	<b>subsequent focus</b> - evaluation study - traditional instance
<b>Second cluster</b>	Consultations and high-level conferences	second high-level conference - novel instance	<b>one focus</b> - first consultation - Communication - second consultation - traditional instances	<b>another focus</b> - first high-level conference - novel instance
<b>Third cluster</b>	Working group	subgroups of the working group - novel instance	<b>single focus</b> - working group - novel instance	n/a
<b>Fourth cluster</b>	IA preparation and review	production of joint contribution by DG MOVE, DG CLIMA and DG ENER (for IASG meeting) - novel instance	<b>single focus</b> - IA preparation by the IASG - IA review by the IAB - novel instances	n/a
<b>Fifth cluster</b>	ISC with adoption	preparation of the final version of the documents (by DG MOVE, as well as during the Special Chief meeting and during the Hebdo meeting) - novel instance	<b>single focus</b> - ISC with adoption - traditional instance	n/a



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References are listed by cluster of formal process steps, as well as then in order shown in **Appendix III**.

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## **Supplementary material – I. Data for key novel instances**

I – here – set out the data gathered through content analysis. That data covers actors putting forward solutions and possibly forming coalitions, as well as actors and/or coalitions putting forward combinations of narrative elements. The data is – here, specifically – provided for the key novel instances.

In this case, I – for ‘I. solutions’ – consider how frequently the subcategories are mentioned. For doing so, I consider the frequency of the ‘units of coding’. Such an approach allows assessing the ‘balance’ of policy instrument mixes for transitions – as defined above. For the subcategories covered, I then address the indicators mentioned (set out in the coding frame), and I address the elaboration of these.

And, in this case – for the narrative elements other than solutions (I.) – I outline the subcategories covered. For the subcategories covered, I then again address the indicators mentioned, and I address the elaboration of these.

### I.i. Preparation of the TRANSvisions study

In this section, I address the first of five key novel policy work instances. This key novel instance relates to the preparation of the TRANSvisions study by the study consortium.

I here draw on the results of the analysis for the final report of the TRANSvisions study (Petersen et al. 2009).

It is important to note that the final report of the TRANSvisions study is the result of the preparation of the study, and of its review by DG TREN. An additional analysis of the draft study (before review by DG TREN) would therefore have been appropriate – such a draft version of the study was, however, not available. I acknowledge this limitation.

The final report was jointly authored by all actors in the consortium. I hence here only address one actor, the study consortium.

The study consortium put forward all **solutions** (II.), but mostly traditional environmental economics-based solutions (II.i.).<sup>64</sup>

The **novel solutions** put forward by the study consortium included innovation studies-based solutions (II.ii.). These solutions included the fostering of interactions between actors, as well as training in relation to R&D.

Regarding the fostering of interactions, the study consortium pointed to “Joint Technology Initiatives” (JTIs). These JTIs are to produce a “target oriented research and development [R&D] programme” or targeted “R&D strategies”, as well as an “implementation plan”. These, in turn, are to focus on vehicle technologies, including hydrogen fuel cells. These are also to focus on “smart systems integration”. Regarding training, the study consortium on the one hand highlighted training for the improvement of “oil-based cars”. On the other hand, the study consortium highlighted

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In what follows, ‘more’ refers to twice as frequent as others, or to two-thirds of total. And, ‘mostly’ refers to three times as frequent as others, or to three-quarters of total. Moreover, ‘various’ refers to half of total.

training for developing “new generation vehicles” and for developing “intelligent highly automated systems”.

The study consortium ‘fleshed out’ these novel innovation studies-based solutions (II.ii.) to different degrees. Of the solutions put forward by the study consortium, fostering of interactions is the most specific. The study consortium pointed to JTIs, producing different strategic documents, with different foci.

The novel solutions put forward by the study consortium also included a SPT-based solution (II.iii.). This solution was land-use policies.

The land-use policies are to lead to a reduction in travel, through ensuring a “proximity” of “jobs and services” and “residences of workers and service users”. This, in turn, is to be achieved through “compact urbanisation”, as well as through the “de-urbanisation of smaller communities”.

The **traditional** environmental economics-based **solutions** (II.i.) put forward by the study consortium included subsidies to R&D. They also included vehicle standards and restrictions. The traditional solutions, moreover, included vehicle taxes, as well as vehicle subsidies, infrastructure subsidies with standards and other subsidies. The traditional solutions, finally, included tolls and distance driven tax, as well as carbon tax and emissions trading.

Four traditional solutions are most specific – subsidies to R&D, restrictions, infrastructure subsidies with standards, as well as carbon tax and emissions trading.

Subsidies to R&D are to focus on the fuel efficiency of cars on the one hand, as well as on biofuels (including second generation) and on alternative fuels (including hydrogen, and including electricity) on the other hand. These are also to focus on “improv[ing] the use of capacity”. Regarding restrictions, the study consortium pointed to the “retirement of older cars”, to speed limits, as well as to low emissions zones. Regarding infrastructure subsidies with standards, the study consortium highlighted roads and congestion. It focused on “dynamic traffic flow management”, ramp metering, and high occupancy vehicle lanes on the one hand, as well as “motorways bans” on the other hand. The study consortium, moreover, highlighted public transport and rail, as well as intermodality. Regarding carbon tax and emissions trading, the study consortium emphasised the “carbon use” of companies and individuals. It referred to “carbon

entitlements” and “UCEs (Units of Carbon Entitlements)”, as well as to “international energy-backed currency units (EBCUs)”.

The study consortium **substantiated** the novel solutions and the traditional solutions to different degrees.

The study consortium substantiated the novel SPT-based solutions (II.iii.), as well as substantiated the traditional environmental economics-based solutions (II.i.).

The **novel** SPT-based **evidence** (IV.iii.) highlighted meanings, as well as materials.

Regarding meanings, the study consortium emphasised the “lack of ... ‘social status factor’” of public transport, as well as the “subjective perception” of insecurity of older people using public transport. It also questioned equating the holidays entitlements as the “right to travel for a holiday”. The study consortium also referred to a “new sustainable mobility freedom concept” – beyond car ownership, and towards active travel and public transport.

Regarding materials, the study consortium pointed to the “increased segregation of communities according to wealth” constituting a “constraint” to land-use planning.

The study consortium ‘fleshed out’ this novel SPT-based evidence (IV.iii.) to different degrees. Of this evidence put forward by the study consortium, meanings is most specific. The study consortium pointed to meanings associated with public transport, as based on different foci.

The **traditional** environmental economics-based **evidence** (IV.i.) addressed effectiveness. It addressed this through models, as well as through Multi-Criteria Analysis (MCA).

Of the traditional evidence put forward by the study consortium, effectiveness is most specific, as well as the models through which this was addressed.

For effectiveness, the study consortium referred to carbon dioxide emissions as “headline indicator”. It also referred to “CO<sub>2</sub> decoupling index = (% Increase in CO<sub>2</sub>) / (% GDP increase)” as “composite indicator”.

For models, these included the “TRANS-TOOLS model” and “meta-models”. The TRANS-TOOLS model – on the one hand – is a “traditional transport model”, and the “most recent state-of-the-practice transport-oriented ... forecast model available at EU level”. The meta-model – on the other hand – is based on a “foresight approach”. It combines TRANS-TOOLS model results with socio-economic development scenarios. The meta-model also addresses “local transport”, while the TRANS-TOOLS model only addresses “long-distance travel”.

The study consortium – finally – **communicated** the novel solutions and the traditional solutions in different ways. The study consortium – firstly – set out the problems that the solutions are to address (I.). The study consortium – secondly – also discussed the solutions as such (V.i. reflection).

The study consortium set out novel problems and traditional problems that the solutions are to address – novel mobility demand too high problems (I.ii.), as well as traditional mobility too inefficient problems (I.i.).

The **novel** mobility demand too high **problems** (I.ii.) included improvements required for distance travelled, as well as for practices/lifestyles and for urban planning. The problems also included alternatives for practices/lifestyles and for urban planning.

Regarding improvements required for urban planning, the study consortium pointed to urban sprawl, to the “concentration of work and shopping in out-of-town locations”. It also pointed to car dependence, to “people living further away from work, leisure activities, shopping centres and schools”.

Regarding alternatives for practices/lifestyles, the study consortium on the one hand focused on “slow transport”, “e-commerce”, as well as telework and “flex-work regimes”. On the other hand, it also focused on “local lifestyle”, as well as “new forms of social organisation with less work, more leisure, strong voluntary sector and “togetherness” in consumption (e.g. co-housing, car-sharing, etc.)”. Moreover, regarding alternatives for urban planning, the study consortium on the one hand pointed to “more accessible locations and destinations”. On the other it pointed to “re-

urbanisation” and the “revitalisation of ... inner cities”, as well as to a “pattern of distributed human settlements”.

The study consortium ‘fleshed out’ these novel problems to different degrees. Of the novel problems put forward by the study consortium alternatives for practices/lifestyles are most specific. The study consortium pointed to various aspects of new forms of social organisation.

The **traditional** mobility too inefficient **problems** (I.i.) included improvements required for vehicles and for the transport system. The problems also included alternatives for fuels and vehicles, as well as for modes of transport and for the transport system.

Of the traditional problems put forward by the study consortium, alternatives for fuels and vehicles, as well as for modes of transport, are most specific.

For alternatives for fuels, the study consortium pointed to second generation biofuels, including bioethanol. The second generation biofuels are to be derived from waste, as well as from “cellulose material, such as wood, plant stems and leaves”. The study consortium also pointed to “compressed air”. For alternatives for vehicles, the study consortium referred to alternative power sources, including hydrogen fuel cells and hybrid engines, as well as to “Intelligent Speed Adaptation Systems” (ISAS). It also referred to “maglev [magnetic levitation] linear-motor train[s]”. For alternatives for transport modes, the study consortium highlighted “active travel”, including walking and cycling. Regarding cycling, it also highlighted “rental or free bicycles”, as well as “smart bikes”. The study consortium also highlighted public transport, including “Personal Rapid Transit System[s]”.

The study consortium – moreover – **discussed** the **substantiation** of the solutions (V.i. reflection).

Regarding traditional evidence, the study consortium explained the meta-model. It explained that the meta-model “provide[s] a bridge between qualitative and quantitative approaches”. The meta-model is based on a “mixing [of] paradigms”. In this case, the aim is “not to be ‘correct’”. Rather, the aim is to “encourag[e] discussion”. This “innovative approach” then contrasts with “the tools of much transport policy formulation [that] are (by tradition) quantitative (such as most assessment

and modelling techniques) ... [and show] a tendency to omit factors that do not fit into a quantifiable framework”.

**‘Combinations’** of narrative elements – then – emerge for the key novel instance – for the key novel instance that relates to the preparation of the TRANSvisions study.

Regarding **‘novel combinations’**, the study consortium put forward a combination with a grounding of novel solutions – both innovation studies-based solutions (II.ii.), and a SPT-based solution (II.iii.). It only substantiated the latter – the SPT-based solution (II.iii.). Moreover – in terms of communication – the study consortium set out both novel problems and traditional problems that the solutions are to address. In addition, the study consortium discussed the traditional evidence.

To sum up, the novel combination put forward by the study consortium encompassed both types of novel solutions (II.ii. and II.iii.). Only the SPT-based solution (II.iii.) was substantiated. Moreover – in terms of communication – the study consortium set out novel problems and traditional problems that the solutions are to address. In addition, the study consortium discussed the traditional evidence.

Regarding **‘traditional combinations’**, the study consortium put forward a combination with a grounding of traditional solutions (II.i.). It substantiated these. Moreover – in terms of communication – the study consortium set out both novel problems and traditional problems that the solutions are to address. In addition, the study consortium discussed the traditional evidence.

To sum up, the traditional combination put forward by the study consortium encompassed a grounding of traditional solutions. It substantiated these. Moreover – in terms of communication – the study consortium set out both novel problems and traditional problems that the solutions are to address. In addition, the study consortium discussed the traditional evidence.

The study consortium – notably – put forward a novel combination<sup>65</sup>, as well as put forward a traditional combination.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a ‘novel **most specific combination**’ and a ‘traditional most specific combination’ emerge.

A **novel** most specific combination, **from** the fostering of interactions between actors; **to** meanings; **to** alternatives for practices/lifestyles.

In addition, a **traditional** most specific combination, **from** subsidies to R&D, restrictions, infrastructure subsidies with standards, as well as carbon tax and emissions trading; **to** effectiveness, as well as models; **to** alternatives for fuels and vehicles, as well as alternatives for modes of transport.

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Encompassing both types of novel solution – II.ii. and II.iii.

## I.ii. Second high-level conference

In this section, I address the second of five key novel policy work instances. This key novel instance relates to the second high-level conference.

I here draw on the results of the analysis for a speech given by the Director-General of DG TREN Matthias Ruete at the start of the conference (DG TREN 2009 - 1), together with the summary record of the second high-level conference published by DG TREN (DG TREN 2009 - 2).

It is important to note that the summary record of the second high-level conference only provided a summary of the contributions of the panellists. An additional analysis of the contributions of all of the participants would have been appropriate – a summary of contributions of actors beyond the panellists was, however, not available. I acknowledge this limitation.

The speech was given by one actor only (DG TREN), and the report identified the different actors. I hence here address the different actors.

On the one hand, most of the actors put forward most to only traditional environmental economics-based **solutions** (II.i.). On the other hand, one actor only put forward novel SPT-based solutions (II.iii.).

One actor put forward a **novel** innovation studies-based **solution** (II.ii.) (EUCAR – European Council for Automotive R&D). This solution was the fostering of interactions between actors.

EUCAR pointed to “collaborative research and government co-operation”, with a focus on electric vehicles.

Two actors (UITP – International Association of Public Transport; IRU – World Road Transport Organisation) put forward novel SPT-based solutions (II.iii.). These solutions included land-use policies and the development of competences.

The land-use policies were put forward by the UITP. It did not further elaborate on these. The development of competences was put forward by the IRU. It pointed to “training standards” and to “capacity building of training institutes”. These are to focus on “eco-driving skills”.

Of the SPT-based solutions (II.iii.) put forward by the actors, the development of competences is most specific – as put forward by IRU. IRU pointed to training standards and to capacity building, with a focus on electric vehicles.

Six actors put forward **traditional** environmental economics-based **solutions** (II.i.). Most of these actors put forward traditional solutions together with other actors – resulting in coalitions.

One coalition only put forward infrastructure subsidies with standards (UITP – International Association of Public Transport; Transport & Environment). Another coalition put forward infrastructure subsidies with standards, in combination with restrictions (Eurelectric – Union of the Electricity Industry; DG TREN). And, another coalition put forward infrastructure subsidies with standards, in combination with usage taxes (DB – Deutsche Bahn; DG TREN).

Five of the traditional solutions put forward by the actors are most specific. This includes infrastructure subsidies with standards – as put forward by UITP, Eurelectric, DG TREN and DB respectively. This also includes restrictions – as put forward by Eurelectric.

For UITP, infrastructure subsidies with standards are to focus on “low carbon transportations”, including public transport, as well as walking and cycling. For Eurelectric, infrastructure subsidies with standards are to focus on electric cars, on “smart grids and charging stations at home and at parking places”. For DG TREN, infrastructure subsidies with standards are to focus on co-modality, as well as “clean technologies” such as electric cars. And, for DB, infrastructure subsidies with standards are to focus on railway lines, on “nodes and intermodal hubs”. Regarding restrictions, Eurelectric pointed to road access and access to parking areas, for electric cars.

The actors – finally – **communicated** the novel solutions and the traditional solutions. The actors set out the problems that the solutions are to address (I.).

The actors only set out **traditional problems** that the solutions are to address – only traditional mobility too inefficient problems (I.i.).

EUCAR pointed to alternatives for vehicles. It pointed to “conventional combustion engines”.

Other actors highlighted improvements required for vehicles and for modes of transport. These improvements required were put forward by DG TREN only. The actors also highlighted alternatives for vehicles, as well as for modes of transport and for the transport system. These alternatives were put forward by Eurelectric and DG TREN, DB and DG TREN, as well as DG TREN, respectively.

Of the traditional problems put forward by actors, improvements required for the transport system, as well as alternatives for vehicles and modes of transport, are most specific – as put forward by DG TREN, as well as Eurelectric, DB and DG TREN, respectively.

For the improvements required, DG TREN pointed to “energy efficiency and environmental improvements in all modes”, as well as the decarbonisation of the transport system. For the alternatives, Eurelectric pointed to electric cars, and DB pointed to rail. Moreover, DG TREN pointed to ITS (“Intelligent Transport Systems”) and ICT (“Information and Communication Technologies”).

**Combinations** of narrative elements – then – emerge for the key novel instance – for the key novel instance that relates to the second high-level conference.

Regarding **novel combinations**, EUCAR put forward a combination with a grounding of a novel innovation studies-based solution (II.ii.). EUCAR did not substantiate this. Moreover – in terms of communication – EUCAR only set out a traditional problem that the solution is to address.

UITP and IRU merely put forward novel SPT-based solutions (II.iii.).

To sum up, the novel combination put forward by the actor only encompassed one type of novel solution (II.ii.). This novel solution was not substantiated. Moreover – in terms of communication – the actor only set out a traditional problem that the novel innovation studies-based solution (II.ii.) is to address.

Regarding **traditional combinations**, a coalition of UITP and T&E merely put forward one traditional solution (II.i.).

Two other coalitions – coalition of Eurelectric and DG TREN, as well as coalition of DB and DG TREN – put forward combinations with a grounding of two traditional solutions. The coalitions did not substantiate these. Moreover – in terms of communication – the two coalitions set out traditional problems that the solutions are to address.

To sum up, the traditional combinations put forward by the coalitions encompassed a grounding of two traditional solutions (two coalitions). These were not substantiated. Moreover – in terms of communication – the coalitions set out traditional problems that the solutions are to address.

The UITP – notably – put forward a novel combination<sup>66</sup>, as well as put forward a traditional combination. In this case, UITP did so in a coalition for the latter only.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – only a traditional **most specific combination** emerges. A **traditional** most specific combination, **from** infrastructure subsidies with standards and restrictions; **to** alternatives for vehicles and for modes of transport.

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Encompassing only one type of novel solution – II.iii.

### **I.iii. Subgroups of the Commission working group**

In this section, I address the third of five key novel policy work instances. This key novel instance relates to the subgroups of the Commission working group.

I here primarily draw on the results of the analysis for the minutes of the subgroups meetings (DG TREN 2010; DG MOVE 2010 - 1 to DG MOVE 2010 - 7). I – also – draw on the results of the analysis for the subgroups meetings documents (Expert Group on Future Transport Fuels 2010; Nemry and Brons 2010; Wiesenthal et al. 2010). I – moreover – draw on the results of the analysis for the thematic papers summarising the outcomes of the subgroups meetings (Subgroups 2010 - 1 and Subgroups 2010 - 2).

The minutes of the subgroups meetings – and the documents put forward for these – identified the different actors or DGs. I hence address the different actors for these. The thematic paper did not identify the different actors. I hence only address one actor for these, the “subgroups”.

On the one hand, most actors put forward only traditional environmental economics-based **solutions** (II.i.). On the other hand, some actors put forward mostly environmental economics-based solutions (II.i.), with novel SPT-based solutions (II.iii.).

As for the meetings documents, the “Joint Research Centre” (JRC) in addition put forward a novel innovation studies-based solution (II.ii.). As for the thematic papers, the subgroups in addition put forward novel innovation studies-based solutions (II.ii.).

Two actors (DG Economic and Financial Affairs – DG ECFIN; DG Climate Action – DG CLIMA) put forward a **novel** SPT-based **solution** (II.iii.). This solution was land-use policies. The two actors put forward the solution together – resulting in a coalition. The coalition did not further elaborate on these.

As for the meetings documents, the JRC further elaborated on the land-use policies. It pointed to “modifications in urban planning”. As for the thematic papers, the subgroups also further elaborated on these. They pointed to “location decisions”, including together with decisions regarding transport. These are to lead to “mixed (workplace, residential and leisure) development

patterns”, as well as to combined facilities such as “shopping malls, car parks and collective transport terminals”.

As for the thematic papers, the subgroups in addition put forward another SPT-based solution (II.iii.), the development of competences. More specifically, the subgroups pointed to eco-driving competences, to be gained obtained during driving licence training.

Of the SPT-based solutions (II.iii.), the land-use policies put forward by the subgroups (thematic papers) are most specific. The subgroups pointed to location decisions, with a focus on mixed developments and combined facilities.

As for the meetings documents, the JRC put forward a novel innovation studies-based solution (II.ii.). This solution was the fostering of interactions between actors. The JRC pointed to the coordination of actors – with these “agree [ing] on a common trajectory” and “work[ing] towards an agreed timeline”. The JRC also pointed to the preparation of “joint technology roadmaps”. “Car manufacturers and fuel suppliers” are, in this case, to focus on the development of “fuel technology” – including “fuel production and distribution infrastructure”, as well as including engine technologies and vehicle technologies.

As for the thematic papers, the subgroups also put forward this novel innovation studies-based solution (II.ii.) – the fostering of interactions between actors. The subgroups pointed to the coordination of efforts and of funding. The subgroups pointed to the “Strategic Transport Technology Plan”, including technology roadmaps. “European and national public and private” actors are, in this case, to focus on developing a “clean ... transport system”.

Of the innovation studies-based solutions (II.ii.), the fostering of interactions between actors put forward by the JRC (meetings documents) is most specific. The JRC pointed to the coordination of actors, to joint technology roadmaps, as well as to different foci.

Eight actors put forward **traditional** environmental economics-based **solutions** (II.i.). Most of these actors put forward traditional solutions together with other actors – resulting in coalitions.

One coalition only put forward infrastructure subsidies with standards or other subsidies (DG Research and Innovation – DG RTD; JRC). Another coalition put forward infrastructure subsidies with standards, in combination with emissions trading (DG Enterprise and Industry – DG ENTR; DG

CLIMA). And, another coalition put forward infrastructure subsidies with standards, in combination with tolls or emissions trading, as well as in combination with vehicle taxes or vehicle subsidies (DG MOVE – DG MOVE Unit A.3.; DG MOVE other Units).

As for the meetings documents, the two actors (Expert Group on Future Transport Fuels; JRC) – in a coalition – rather put forward subsidies to R&D, in combination with fuel standards or vehicle standards, as well as in combination with vehicle taxes or vehicle subsidies.

As for the thematic papers, the subgroups in addition put forward fuel standards and vehicle standards, as well as restrictions.

Seven of the traditional solutions put forward by the actors are most specific. This includes infrastructure subsidies with standards – as put forward by DG MOVE Unit A.3. and DG MOVE other Units, as well as put forward by subgroups (thematic papers). This also includes subsidies to R&D – as put forward by the Expert Group (meetings documents). And, this includes restrictions, vehicle taxes or vehicle subsidies, as well as various usage taxes – as put forward by subgroups (thematic papers).

For DG MOVE Unit A.3., infrastructure subsidies with standards are to focus on “innovative transport solutions” on the one hand, as well as on intermodality with terminals or interchanges on the other hand. For DG MOVE other Units, these are to focus on fuelling infrastructure for “biofuels, gas, hydrogen and electricity” on the one hand, as well as on “smaller and 'soft' infrastructure”. These are also to focus on costs on the one hand, as well as “lifetime impacts” with CO<sub>2</sub> emissions on the other hand. For subgroups (thematic papers), these are to focus on charging infrastructure and hydrogen infrastructure, as well as on “strategic components of the network” on the one hand. On the other hand, these are to focus on public transport including metro and tram, on walking and cycling, as well as on “multi-modal hubs”.

Regarding subsidies to R&D, the Expert Group (meetings documents) pointed to fungible fuels (including synthetic fuels) on the one hand, as well as liquid biofuels (including from “new biomass sources” such as algae) on the other hand. Regarding restrictions, subgroups (thematic papers) highlighted access (including to parking and to environmental or green zones) on the one hand, as well as speed reductions on the other hand. Regarding vehicle taxes or vehicle subsidies, subgroups (thematic papers) pointed to circulation taxes, based on CO<sub>2</sub> performance – including for company cars. They also pointed to “green public procurement” for public fleets, as well as more broadly to the “strategic deployment” of new technologies. Regarding various usage taxes, subgroups (thematic papers) identified the “harmonisation of VAT rules” for transport. They also identified

fuel taxes, based on carbon/CO<sub>2</sub> and energy content, with fewer exemptions (including for diesel). And, they identified tolls for all vehicles, as well as pilot schemes for a time based tax.

The actors **substantiated** the novel solutions and the traditional solutions to different degrees.

The actors substantiated the novel SPT-based solutions (II.iii.), as well as the traditional environmental economics-based solutions (II.i.).

As for the meetings documents, actors rather substantiated the innovation studies-based solutions (II.ii.), as well as the traditional environmental economics-based solutions (II.i.).

As for the thematic papers, the subgroups rather substantiated the novel innovation studies-based solutions (II.ii.) and the SPT-based solutions (II.iii.), as well as the traditional environmental economics-based solutions (II.i.).

One actor put forward **novel SPT-based evidence** (IV.iii.), highlighting meanings. DG CLIMA pointed to time in traffic jams “not ... considered ... time wasted”.

As for the thematic papers, subgroups highlighted materials and systems of practices. Regarding materials, subgroups highlighted how “mixed ... development patterns” and “higher density land use patterns” limit the “motorised transport demand”. Regarding systems of practices, it highlighted that interventions targeting practices should occur when other “habits” or practices change, such as “when moving into a new area, when changing job, when kids are starting school”.

Of this evidence, materials and systems of practices are most specific. The subgroups (thematic papers) pointed to land-use patterns limiting the transport demand. And, they pointed to overlaps between practices, with opportunities for change in such systems of practices occurring when some of the constituting practices are being altered.

As for the meetings documents, one actor (JRC) put forward novel innovation studies-based evidence (II.ii.), highlighting structure and functions. Regarding structure, JRC pointed to “subsectors” of the automotive industry – including car manufacturers and automotive suppliers. For alternative fuels, automotive suppliers also include “battery manufacturers”, as well as “large oil companies, specialised biofuel producers or dedicated fuel cell makers”. Regarding functions,

the JRC considered total R&D investments. The JRC considered these based on public figures. The JRC, moreover, addressed R&D investments regarding “low-carbon technologies” – such as “improvement of conventional engines, electric and hybrid vehicles, hydrogen/fuel cells and biofuels”, as well as “close-to-market” technologies and “further from market” technologies. The JRC addressed these based on “an assessment of patents, speeches, annual reports and other indirect indications such as the turnover of business section or division or number of R&D employees by business segment etc.”.

As for the thematic papers, subgroups highlighted structure and functions. Regarding structure, subgroups noted the “high number of stakeholders involved” – including “automotive industry (vehicle manufacturers and suppliers), electricity providers, gas companies, grid managers, electric component manufacturers, scientific and standardisation bodies, as well as EU, national and regional authorities, municipalities”. Regarding functions, subgroups pointed to the “difficulties in the demonstration and pre-commercial phases of the innovation chain”. It, moreover, pointed to the need to “setting long-term objectives” and to “co-ordinating R&D expenditures”.

Of this evidence, structure and functions are most specific – as put forward by the JRC (meetings documents) and by subgroups (thematic papers), as well as by the JRC (meetings documents), respectively. Regarding structure, the JRC pointed to subsectors of the automotive industry (including specific automotive suppliers for alternative fuels). And, the subgroups also pointed to other stakeholders – such as scientific and standardisation bodies, as well as public authorities. Regarding functions, the JRC pointed to R&D investments – including R&D investments in specific “low-carbon technologies”.

The actors put forward **traditional evidence**, addressing effectiveness, through models and studies. These were put forward by DG MOVE Unit A.3., as well as DG MOVE other Units and DG CLIMA, respectively. The actors also addressed informational requirements and undesired effects. This was put forward by DG MOVE Unit A.3. only.

As for the meetings documents, the traditional evidence addressed externalities, effectiveness and cost – through a study and a model. These were put forward by JRC only. As for the thematic papers, the traditional evidence put forward by the subgroups addressed externalities and cost-effectiveness, as well as cost and cost-benefit – through studies.

Of the traditional evidence put forward by actors, externalities and effectiveness are most specific – as put forward by JRC (meetings documents) and subgroups (thematic papers), as well as DG MOVE Unit A.3., DG CLIMA, JRC (meetings documents) and subgroups (thematic papers), respectively. Moreover, models are most specific – as put forward by DG MOVE Unit A.3. and JRC (meetings documents).

Regarding externalities, JRC (meetings documents) pointed to negative environmental externalities to be addressed by “technology-specific pull-instruments” and “internalising the external costs (either directly or through the setting of standards)”. It also pointed to positive externalities – including market spillovers, knowledge spillovers and network spillovers – to be addressed through “technology-push policies focusing on the R&D”. The subgroups (thematic papers) pointed to negative external costs – including GHG emissions and sustainability, as well as car use and transport mode choice. They also pointed to a positive externality, the non-appropriability of research.

Regarding effectiveness, DG MOVE Unit A.3. pointed to CO<sub>2</sub> emissions, to energy efficiency and to the carbon intensity of energy on the one hand, as well as to activity levels on the other hand. DG CLIMA pointed to CO<sub>2</sub> emissions on the one hand, as well as to congestion on the other hand. JRC (meetings documents) pointed to CO<sub>2</sub> emissions (including well-to-wheel emissions), as well as to energy consumption. Regarding cost-effectiveness as well as cost and cost-benefit, subgroups (thematic papers) pointed to avoidance costs and mitigation costs. They also pointed to climate change costs and to marginal damage costs.

Regarding models, DG MOVE Unit A.3. referred to the “TRANS-TOOLS model” for “transport demand”, as well as to the “PRIMES and TREMOVE models” for “emissions” and for “energy consumption”. JRC (meetings documents) also referred to the TREMOVE model – that includes “a transport demand module, a vehicle turnover module and an emission and fuel consumption module”, as well as a “well-to-tank emissions module” and a “welfare cost module”. DG MOVE Unit A.3. referred to a new version of this model. This new version – as regards vehicle choice – also addresses electric vehicles.

The actors – finally – **communicated** the novel solutions and the traditional solutions in different ways. The actors – firstly – set out the problems that the solutions are to address (I.). The actors – secondly – discussed the solutions as such (V.i. reflection and V.ii. critique). They also discussed undesired solutions as such (III.ii.).

The actors set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

DG ECFIN pointed to improvements required for practices/lifestyles. DG MOVE Unit A.3. pointed to improvements required for amount of transport. It pointed to “activity levels”.

As for the meetings documents, the JRC pointed to improvements required for amount of transport. As for the thematic papers, the subgroups pointed to improvements required for amount of transport, for practices/lifestyles, as well as for urban planning. For amount of transport, subgroups pointed to “transport activity”. And, for urban planning, they pointed to “urban sprawl”.

The actors set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

DG RTD and by DG MOVE Unit A.3. highlighted improvements required for fuels and for vehicles, as well as for the transport system. The actors also identified alternatives for fuels and vehicles, for transport modes, as well as for the transport system. These alternatives were put forward by DG RTD, as well as by DG MOVE Unit A.3. and by DG MOVE other Units.

As for the meetings documents, the Expert Group pointed to alternatives for fuels. Moreover, the JRC pointed to alternatives for fuels, for vehicles, as well as for transport modes.

As for the thematic papers, the subgroups highlighted improvements required for fuels, for vehicles, for transport modes and for the transport system. They also highlighted alternatives for fuels, for vehicles, for transport modes, and for the transport system.

Of the traditional problems put forward by actors, improvements for transport modes and for the transport system are most specific – as put forward by subgroups (thematic papers), as well as by DG MOVE Unit A.3. and subgroups, respectively. Moreover, alternatives for fuels and for vehicles, as well as alternatives for transport modes and the transport system are most specific – as put

forward by the Expert Group and the JRC (meetings documents), as well as by the JRC (meetings documents) and the subgroups (thematic papers), respectively.

For improvements for transport modes, subgroups highlighted efficiency and “load factors”. For improvements for the transport system, DG MOVE Unit A.3. highlighted to the “energy intensity of transport activity and carbon intensity of energy used”, and the subgroups highlighted energy efficiency.

For alternatives for fuels, the Expert Group highlighted electricity “via: battery, hydrogen/fuel cells or overhead line/third rail”, as well as liquid biofuels and methane of “natural gas of fossil origin, or biomethane from biomass”. For alternatives for vehicles, JRC highlighted “reductions in weight and of aerodynamic and rolling resistance combined with improvements in the efficiencies of conventional powertrains” on the one hand, as well as “new technologies” including electric vehicles and hydrogen-powered vehicles on the other hand. Moreover, for alternatives for transport modes, the JRC highlighted different “business models” – such as battery leasing or vehicles leasing on the one hand, as well as “battery swapping” or car-sharing on the other hand. And, for alternatives for the transport system, subgroups highlighted “most efficient mode” or “sustainable mix of modes”, as well as the integration of modes.

The actors – moreover – **discussed** the **solutions** and their **substantiation** (V.i. reflection and V.ii. critique).

Regarding traditional evidence (IV.i.), and the evaluation criteria for analysis, DG MOVE Unit A.3. explained the difference between cost-effectiveness and cost-benefit. The latter in this case allows for “policy scenarios with differing levels of ambition for decarbonisation”. Moreover, regarding models, DG MOVE Unit A.3. and DG MOVE other Units explained that the TRANS-TOOLS model only addresses “interurban traffic”, and not urban traffic. Therefore additional “qualitative analysis” is needed.

Also regarding traditional evidence, DG CLIMA pointed to ownership and usage. And, DG ECFIN also pointed to “rebound effect or modal shift”. It also noted that “complementary analysis” is needed to address these. DG MOVE other Units also pointed to “modal choice”. And, the JRC also pointed

to “location choices”, and noted that these “are extremely complex and based on a number of factors which it is difficult to compute”.

Regarding informational requirements, DG MOVE other Units “emphasised the importance of assumptions concerning the carbon intensity of electricity”. And, DG CLIMA stressed that there is “not enough information on marginal abatement costs”. Moreover, the DG RTD noted that for addressing the informational requirements, the results of “[EU] research projects ... could be reflected in the projections [, in the models]”.

DG MOVE Unit A.3. called for a combination of traditional solutions – of taxes and emissions trading. It highlighted that IAs for White Papers address the “overall effect” of “policy packages” or combinations of solutions, while the IAs for “single measures” or single solutions address the specific effects of these. At the same time, DG MOVE Unit A.3. noted that – for the models – adopted solutions (by the legislator) and proposed solutions (by the Commission) are to be included in the “baseline scenario” or “reference scenario”. In other words, proposed solutions are not to be analysed as “it may be politically problematic if the results [of the IA for the White Paper] are different from the findings of the original impact assessment [for the proposed solutions]”. DG MOVE other Units opposed this, arguing that proposed solutions should indeed be included in the analysis.

Regarding emissions trading, DG MOVE other Units – on the one hand – noted that the White Paper IA “would need to explain why both ETS [emissions trading] and fuel taxation were needed”. DG CLIMA – on the other hand – noted that there is “not ... a clear political signal for using a sectoral approach or one common cap”. It also noted that different approaches to the inclusion of the transport sector in emissions trading differ in terms of “transaction costs”, and in terms of the resulting emissions reductions in different sectors. The JRC in this regard “noted that the transaction costs for including road transport in ETS at end-user level would be very high”.

Moreover, the JRC (meetings documents) explained the uncertainties associated with some of the innovation studies-based evidence (IV.ii.). It explained that R&D investments regarding “low-carbon technologies” are difficult to assess as “some companies consider this information as confidential, and that others use them for strategic purposes”. It also explained that public R&D investments or

subsidies were only available for some MSs and that these figures do not include “institutional funding”.

The JRC then also called for additional innovation studies-based evidence (IV.ii.). It called for such additional evidence “beyond the analysis of financial support to transport research [by different actors], ... to include an assessment of institutional capacities, policies and measures and their use and interplay ... , as it is done in the concept of the Innovation System”.

The actors – moreover – **discussed undesired solutions** (III.ii.).

DG MOVE other Units opposed the traditional solution (II.i.) vehicle standards in relation to “company procurements” – effectively vehicle standards – and rather called for the traditional solution carbon tax.

DG CLIMA opposed the traditional solution infrastructure subsidies that do not contribute to decarbonisation. DG MOVE other Units, more broadly, opposed any subsidies that do not contribute to decarbonisation. Moreover, DG ECFIN also opposed infrastructure subsidies, as these lead to a “traffic increase”.

DG ECFIN on the one hand opposed the traditional solution vehicle taxes – including ownership and circulation – and rather called for the traditional solution tolls, as these account for the distance driven. DG MOVE Unit A.3. on the other hand opposed such tolls – and rather called for the traditional solution subsidies, due these showing an “introduction ease”.

**Combinations** of narrative elements – then – emerge for the key novel instance – for the key novel instance that relates to the subgroups of the Commissions working group.

Regarding **novel combinations**, DG ECFIN and DG CLIMA – in a coalition – put forward a combination with a grounding of a novel SPT-based solution (II.iii.). The coalition substantiated this. Moreover – in terms of communication – the coalition set out a novel problem that the solution is

to address. In addition, the coalition discussed traditional evidence. It also discussed undesired traditional solutions – partially calling for another traditional solution.

As for the meetings documents, the JRC put forward a combination with a grounding of both novel SPT-based solutions (II.iii.) and novel innovation studies-based solutions (II.ii.). It only substantiated the latter – innovation studies-based solutions (II.ii.). Moreover – in terms of communication – the JRC set out a novel problem and traditional problems that the solutions are to address. In addition, the JRC discussed the innovation studies-based evidence (IV.ii.).

As for the thematic papers, the subgroups put forward a combination with a grounding of both novel SPT-based solutions (II.iii.) and novel innovation studies-based solutions (II.ii.). They substantiated both of these. Moreover – in terms of communication – the subgroups set out novel problems and traditional problems that the solutions are to address.

To sum up, the novel combinations put forward by a coalition and by actors overall encompassed both types of novel solutions (II.ii. and II.iii.) – with the exception of subgroups meetings minutes showing a novel SPT-based solution (II.iii.) only. The respective solutions were overall substantiated – with the exception of meetings documents showing innovation studies-based evidence (IV.ii.) only. Moreover – in terms of communication – the actors overall set out novel problems and traditional problems that the solutions are to address – with the exception of subgroups meetings minutes showing a novel problem only. In addition, actors discussed traditional evidence and undesired traditional solutions on the one hand (subgroups meetings minutes), as well as innovation studies-based evidence (IV.ii.) on the other hand (meetings documents).

Regarding **traditional combinations**, a coalition of DG RTD and JRC put forward a combination with a grounding of one traditional solution (II.i.). The coalition did not substantiate this. Moreover – in terms of communication – the coalition only set out traditional problems that the solution is to address. In addition, the coalition discussed traditional evidence and traditional solutions.

Another coalition – a coalition of DG ENTR and DG CLIMA – put forward a combination with a grounding of two traditional solutions. The coalition substantiated this. Moreover – in terms of communication – the coalition did not set out problems that the solutions are to address. In addition, the coalition discussed traditional evidence. It also discussed undesired traditional solutions.

Another coalition – a coalition of DG MOVE Unit A.3. and DG MOVE other Units – put forward a combination with a grounding of three traditional solutions. The coalition substantiated these. Moreover – in terms of communication – the coalition set out a novel problems and traditional problems that the solutions are to address. In addition, the coalition discussed traditional evidence, as well as traditional solutions and combinations of traditional solutions. It also discussed undesired traditional solutions – partially calling for another traditional solution.

As for the meetings documents, a coalition of Expert Group and JRC put forward a combination with a grounding of three traditional solutions. The coalition substantiated this. Moreover – in terms of communication – the coalition set out a novel problems and traditional problems that the solutions are to address.

As for the thematic papers, the subgroups (single actor) put forward a combination with a grounding of traditional solutions. The subgroups substantiated these. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solutions are to address.

To sum up, the traditional combinations put forward by actors encompassed a grounding of an individual traditional solution (one coalition – subgroups meetings minutes), a grounding of two traditional solutions (one coalition – subgroups meetings minutes), a grounding of three traditional solutions (two coalitions – subgroups meetings minutes and thematic papers), as well as a grounding of traditional solutions (thematic papers, single actor). The actors overall substantiated these – with the exception of the coalition putting forward a combination with grounding of an individual traditional solution.

Moreover – in terms of communication – two coalitions (subgroups meetings minutes and meetings documents) and the single actor (thematic papers), set out traditional problems and novel problems that the solutions are to address on the one hand. And, one coalition only set out traditional problems and another coalition did not set out problems, on the other hand (subgroups meetings minutes). In addition, three coalitions (subgroups meetings minutes) discussed traditional evidence. Two of these coalitions, in addition, discussed traditional solutions as well as undesired traditional solutions respectively.

The DG CLIMA (subgroups meetings minutes), as well as JRC (meetings documents) and subgroups (thematic papers) – notably – each put forward a novel combination<sup>67</sup>, as well as put forward a traditional combination. In this case, DG CLIMA did so in a coalition for both. And, the JRC did so in a coalition for the latter only.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a novel **most specific combination** and a traditional most specific combination emerge.

A **novel** most specific combination, **from** the fostering of interactions between actors and land-use policies; **to** structure and functions, as well as materials and systems of practices.

In addition, a **traditional** most specific combination, **from** subsidies to R&D, restrictions, vehicle taxes or vehicle subsidies, infrastructure subsidies with standards, as well as various usage taxes; **to** externalities and effectiveness, as well as models; **to** improvements for transport modes and for the transport system, as well as alternatives for fuels and alternatives for vehicles, as well as alternatives for transport modes and the transport system.

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Encompassing one type as well as both types of novel solution, respectively – II.iii. as well as II.ii. and II.iii.

#### **I.iv. Preparation of joint contribution for IASG meeting**

In this section, I address the fourth of five key novel policy work instances. This key novel instance relates to the preparation of a joint contribution by DG MOVE, DG Climate Action (DG CLIMA) and DG Energy (DG ENER) for the first IASG (“Impact Assessment Steering Group”) meeting (23 October 2010).

I here primarily draw on the results of the analysis for the joint contribution (DG MOVE et al. 2010). I – also – draw on the results of the analysis for the IASG meetings minutes (DG CLIMA 2010; DG MOVE 2010 - 8; DG CLIMA and DG MOVE 2010). I – moreover – draw on the results of the analysis for the IASG meetings documents, for the IA drafts (DG MOVE 2010 - 9; DG MOVE 2010 - 10).

The joint contribution was jointly authored by DG MOVE, DG CLIMA and DG ENER. I hence only address one actor for this, the “DGs”. The IASG minutes identified the different actors or DGs. I hence address the different actors for these. And, the IA drafts were authored by DG MOVE. I hence only address one actor for these, DG MOVE.

The DGs put forward more traditional environmental economics-based **solutions** (II.i., with one novel innovation studies-based solution (II.ii.).

As for the IASG minutes, one actor (DG ENER) rather put forward novel SPT-based solutions (II.iii.). As for the IA drafts, DG MOVE in addition put forward novel SPT-based solutions (II.iii.), as well as rather mostly traditional solutions.

The DGs put forward one **novel** innovation studies-based **solution** (II.ii.) – targeted subsidies to R&D. They pointed to R&D and “early deployment” or demonstration projects for smart grids and batteries. As for the IA drafts, DG MOVE more generally pointed to “key innovative technologies”. As for the IA drafts, DG MOVE in addition put forward another novel innovation studies-based solution (II.ii.) – fostering of interactions between actors. It pointed to the “develop[ment of] research and deployment agendas”, with the “coordination of European and national (private and public) efforts and funding”.

Of the innovation studies-based solutions (II.ii.), targeted subsidies to R&D and the fostering of interactions between actors are most specific – as put forward by the DGs and by DG MOVE respectively. Regarding targeted subsidies to R&D, the DGs pointed to smart grids and batteries. Regarding the fostering of interactions between actors, DG MOVE pointed to “research and deployment agendas” with the “coordination of ... efforts and funding”.

As for the IASG minutes, DG ENER in general pointed to novel SPT-based solutions (II.iii.) – which could include the reshaping of meanings or the development of competences. It highlighted “eco-driving”. As for the IA drafts, DG MOVE also highlighted “virtual accessibility”.

As for the IA drafts, DG MOVE in addition put forward another novel SPT-based solution (II.iii.) – land-use policies. It pointed to “transport planning” and “urban policies”, with a focus on “soft modes and public transport”. It also pointed to “urban mobility plans”.

Of the SPT-based solutions (II.iii.), land-use policies as put forward by DG MOVE is most specific. DG MOVE pointed to soft modes and public transport, and to “urban mobility plans”.

The **traditional** environmental economics-based **solutions** (II.i.) put forward by the DGs included subsidies to R&D. They also included vehicle standards. The traditional solutions, moreover , included vehicle taxes, as well as infrastructure subsidies with standards.

As for the IA drafts, DG MOVE in addition put forward fuel standards. It also in addition put forward vehicle subsidies and other subsidies. It, moreover, put forward fuel taxes and tolls.

Three of the traditional solutions put forward by the actors are most specific – subsidies to R&D, as put forward by DG MOVE (IA drafts). This also includes vehicle taxes and infrastructure subsidies with standards, also put forward by DG MOVE (IA drafts).

For subsidies to R&D, DG MOVE pointed to alternative fuels on the one hand. It also pointed to ICT or ITS on the other hand (including to “European traffic management systems” and “electronic tolling systems”). For vehicles taxes, DG MOVE highlighted differentiation based on “environmental performance”, and the inclusion of company cars. For infrastructure subsidies, DG MOVE highlighted public transport as well as “non-road infrastructure” on the one hand. It also highlighted “soft modes” or “non-motorised modes” on the other hand. DG MOVE, moreover, pointed to “clean

energy carriers [or fuels] ... supporting infrastructures” on the one hand. It also again pointed to ICT or ITS on the other hand, including to “European traffic management systems”.

The DGs and DG ENER (IASG minutes) did not substantiate the novel solutions, and did not substantiate the traditional solutions. Only DG MOVE (IA drafts) **substantiated** the novel solutions and the traditional solutions to different degrees.

DG MOVE substantiated the novel innovation studies-based solutions (II.ii.) and the novel SPT-based solutions (II.iii.), as well as the traditional environmental economics-based solutions (II.i.).

The **novel** innovation studies-based **evidence** (IV.ii.) put forward by DG MOVE highlighted structure and functions. As regards structure, DG MOVE noted that for innovation and “transport technologies”, there is a “fragmentation of efforts between the EU, Member States, public and private actors”. It also noted that for “alternative fuels” specifically, “stakeholders ... have not necessarily cooperated before”. As regards functions, DG MOVE noted – again for innovation and “transport technologies” – that there is an “insufficient data and information [exchange] and [a] lack of co-ordinated setting of strategic priorities”. And, in terms of setting priorities, there is a need for “strategic technology targeting of scarce financial, managerial and scientific resources”.

Of this evidence put forward by DG MOVE, functions is most specific. DG MOVE highlighted a lack of coordination in terms of data and information exchange, as well as the need to jointly set priorities and target resources.

The novel SPT-based evidence (IV.iii.) put forward by DG MOVE included materials. DG MOVE stressed – as regards land-use policies – that “public authorities ... do not properly take into account the consequences ... in terms of travel needs”, leading to “forced mobility of people”.

The **traditional** environmental economics-based **evidence** (IV.i.) put forward by DG MOVE addressed externalities, as well as effectiveness and cost-effectiveness. It addressed the latter through models.

Of this traditional evidence put forward by DG MOVE, effectiveness and cost-effectiveness, as well as models, are most specific.

Regarding effectiveness, DG MOVE referred to climate change or CO<sub>2</sub> emissions, as well as to energy use. Regarding cost-effectiveness, DG MOVE referred to “efficiency”, to “the extent to which objectives can be achieved at least cost”. It referred to the “economic ... impacts” – including “impact[s] on the competitiveness of EU businesses (“transport for business”) and on consumers - development of transportation costs and congestion levels”.

For models addressing effectiveness and cost-effectiveness, DG MOVE pointed to “a top-down perspective” analysing “economy-wide” problems, as well as to a “a bottom-up perspective, which enables the analysis of transport specific problems”. For the former, the “PRIMES model” addressed “the relative contribution of transport to economy-wide energy consumption and CO<sub>2</sub> emissions”, and the “GEM-E3 model” addressed “employment developments”. For the latter, the transport specific problems were addressed through several models, through “TRANSTOOLS, the PRIMES transport model and TREMOVE”.

The actors – finally – **communicated** the novel solutions and the traditional solutions. The actors set out the problems that the solutions are to address (I.).

The actors set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

The DGs pointed to improvements required for practices/lifestyles.

As for the IA drafts, DG MOVE pointed to improvements required for the amount of transport and for transport demand. DG MOVE also identified alternatives for practices/lifestyles and alternatives for urban planning.

For improvements required for the amount of transport, DG MOVE highlighted “transport activity”, as well as “traffic volumes” and “vehicle numbers”. Moreover, for alternatives for practices/lifestyles, DG MOVE stressed “alternatives to mobility”. For alternatives for urban

planning, DG MOVE stressed “urban design and infrastructure (i.e. the location of facilities necessary on daily basis and their accessibility by different transport modes ...)”.

The actors set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

The DGs identified alternatives for fuels and vehicles, as well as alternatives for the transport system.

As for the IA drafts, DG MOVE pointed to improvements required for fuels and vehicles, as well as for transport modes and for the transport system. It also identified alternatives for all of these.

Of the traditional problems put forward by actors, alternatives for fuels and for vehicles are most specific – as put forward by DGs and by DG MOVE (IA drafts) respectively. Moreover, alternatives for the transport system, as put forward by DG MOVE (IA drafts), are most specific.

For alternatives for fuels, DGs highlighted biofuels, as well as electricity and hydrogen. For alternatives for vehicles, DG MOVE highlighted “existing powertrains” on the one hand, as well as “new types of powertrains” and “alternative fuel technologies” on the other hand. Moreover, for alternatives for the transport system, DG MOVE pointed to the “integration between transport modes” and to “...optimal modal choices”.

**Combinations** of narrative elements – then – emerge for the key novel instance – for the key novel instance that relates to the preparation of a joint contribution by the DGs (by DG MOVE, DG CLIMA and DG ENER) for the first IASG meeting (23 October 2010).

Regarding **novel combinations**, the DGs put forward a combination with a grounding of a novel innovation studies-based solution (II.ii.). They did not substantiate this. Moreover – in terms of communication – the DGs set out a novel problem and traditional problems that the solution is to address.

As for the IASG minutes, DG ENER merely put forward novel SPT-based solutions (II.iii.).

As for the IA drafts, DG MOVE put forward a combination with a grounding of both novel SPT-based solutions (II.iii.) and innovation studies-based solutions (II.ii.). It substantiated both of these. Moreover – in terms of communication – DG MOVE set out both novel problems and traditional problems that the solutions are to address.

To sum up, the novel combinations put forward by the actors on the one hand encompassed one type of novel solution (II.iii.) (DGs), and on the other hand encompassed both types of novel solutions (II.ii. and II.iii.) (IA drafts – DG MOVE). The DGs on the one hand did not substantiate the novel solution, and DG MOVE (IA drafts) on the other hand substantiated the novel solutions. Moreover – in terms of communication – the actors set out both novel problems and traditional problems that the solutions are to address.

Regarding **traditional combinations**, the DGs put forward a combination with a grounding of a traditional solution (II.i.). They did not substantiate this. Moreover – in terms of communication – the DGs set out a novel problems and traditional problems that the solution is to address.

As for the IA drafts, DG MOVE put forward a combination with a grounding of traditional solutions. It substantiated these. Moreover – in terms of communication – set out both novel problems and traditional problems that the solutions are to address.

To sum up, the traditional combinations put forward by the actors encompassed a grounding of traditional solutions. DG MOVE (IA drafts) on the one hand substantiated the traditional solutions, and the DGs on the other hand did not substantiate these. Moreover – in terms of communication – both DGs and DG MOVE (IA drafts) set out novel problems and traditional problems that the solutions are to address.

The DGs and DG MOVE (IA drafts) – notably – each put forward a novel combination<sup>68</sup>, as well as put forward a traditional combination.

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Encompassing one type and both types of novel solution, respectively – II.ii. as well as II.ii. and II.iii.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a novel **most specific combination** and a traditional most specific combination emerge.

A **novel** most specific combination, **from** targeted subsidies to R&D and the fostering of interactions between actors, as well as land-use policies; **to** functions.

In addition, a **traditional** most specific combination, **from** subsidies to R&D, as well as vehicle taxes and infrastructure subsidies with standards; **to** effectiveness and cost-effectiveness, as well as models; **to** alternatives for fuels and for vehicles, as well as alternatives for the transport system.

#### **I.v. Preparation of final version of documents**

In this section, I address the last of five key novel policy work instances. This key novel instance relates to the preparation the final version of the documents by DG MOVE.

I here draw on the results of the analysis for the final version of the IA – together with the final version of the associated Commission Working Document (Commission 2011 - 1; Commission 2011 - 2). In addition, I draw on the results of the analysis for the final version of the resulting White Paper (Commission 2011 - 2).

It is important to note that the documents analysed are the final version of these – as adopted by the College. This final version of the documents are therefore the result of the selection by DG MOVE of amendments put forward during the “Inter-Service Consultation” (ISC) (by DGs), and the corresponding initial revisions of the documents. The final version of the documents are also the result of subsequent revisions of the documents during the adoption by the College – based on discussions during the Special Chef meeting and during the Hebdo meeting. An additional analysis of the documents with initial revisions by DG MOVE – but before subsequent revisions – would therefore have been appropriate. But, this version of the documents (as well as other documents regarding the Special Chef meeting and regarding the Hebdo meeting) could, however, not be analysed. I acknowledge this limitation.

It is – moreover – important to note as regards the documents, that I only consider the amendments to the documents – amendments relative to the previous version of the documents, relative to the ISC “dossier”-version of the documents. In other words, I only consider the amendments to the documents put forward.

The final version of the documents were authored by DG MOVE. I hence here only address one actor, DG MOVE.

As for the IA and the associated Working Document, DG MOVE put forward only traditional environmental economics-based **solutions** (II.i.).

As for the White Paper, DG MOVE put forward all solutions, but mostly traditional solutions.

The **novel solutions** put forward by DG MOVE (White Paper) included an innovation studies-based solution (II.ii.). This solution was the fostering of interactions between actors.

DG MOVE pointed to the “coordination of multiple actors”, as well as to the development of an “innovation and deployment strategy for the transport sector” – with a focus on developing a “modern, efficient” transport system.

The novel solutions put forward by DG MOVE (White Paper) also included a SPT-based solution (II.iii.). This solution was land-use policies. It did not further elaborate on these.

As for the IA and the associated Working Document, **traditional environmental economics-based solutions** (II.i.) put forward by DG MOVE included subsidies to R&D. These also included vehicle standards and restrictions. The traditional solutions, moreover, included vehicle subsidies and infrastructure subsidies with standards, as well as other subsidies. The traditional solutions, finally, included fuel taxes, as well as usage taxes more generally.

As for the White Paper, traditional solutions put forward by DG MOVE included subsidies to R&D. They also included restrictions. They, moreover, included vehicles taxes, as well as infrastructure subsidies with standards and other subsidies. The traditional solutions, finally, included fuel taxes and tolls, as well as usage taxes more generally.

Five traditional solutions are most specific – subsidies to R&D and restrictions, as well as vehicle taxes and infrastructure subsidies – as put forward by DG MOVE (White Paper).

Regarding subsidies to R&D, these are to focus on “alternative fuels for internal combustion engines” on the one hand. These are on the other hand to focus on “vehicle propulsion technologies”, on “electric and hydrogen fuel cell vehicles”. DG MOVE, moreover, pointed to “demonstration projects to encourage market take-up”, with a focus on developing a “modern, efficient” transport system. It also, more specifically, pointed to “demonstration projects for electro mobility (and other alternative fuels) including recharging and refuelling infrastructure”.

Regarding restrictions, DG MOVE pointed to the “replacement ... of inefficient and polluting vehicles”. It also, more specifically, pointed to the “gradual phasing out of ‘conventionally-fuelled’ vehicles from the urban environment”. Regarding vehicle taxes, DG MOVE highlighted “environmental taxes” and CO<sub>2</sub>, as well as “clean vehicles”. It also, more specifically, highlighted “company car[s]”. Regarding infrastructure subsidies, DG MOVE pointed to “refuelling/recharging stations for clean vehicles” on the one hand, as well as “public transport services and infrastructure

for non-motorised modes” on the other hand. It also, regarding standards, pointed to the “choice of construction materials”.

As for the IA, DG MOVE **substantiated** the traditional environmental economics-based solutions (II.i.).

As for the White Paper, DG MOVE substantiated the novel innovation studies-based solutions (II.ii.).

The **novel** innovation studies-based **evidence** (IV.ii.) put forward by DG MOVE (White Paper) highlighted structure. DG MOVE pointed to “all actors involved” in innovation – involved in different parts of “the full cycle of research, innovation and deployment”, and involved in the different “most promising technologies”.

The **traditional** environmental economics-based **evidence** (IV.i.) put forward by DG MOVE (IA) addressed effectiveness and cost, through models. The traditional evidence also addressed informational requirements.

Of the traditional evidence put forward by DG MOVE, effectiveness and cost, as well as models, are most specific.

For effectiveness, DG MOVE referred to “modal shift”. For cost, DG MOVE referred to “costs of transport” – to “private/internal costs” and to “external costs”. In this case, the “boundary between internal and external costs is defined by the costs the person takes into account when deciding to use a transport service”.

For models addressing effectiveness and cost, DG MOVE pointed to “a top-down perspective” analysing “economy-wide” problems, as well as to a “a bottom-up perspective, which enables the analysis of transport specific problems”. For the former, the “PRIMES model” addressed “the relative contribution of transport to economy-wide energy consumption and CO<sub>2</sub> emissions”, and the “GEM-E3 model” addressed “employment developments”. For the latter, the transport specific problems were addressed through several models, through “TRANSTOOLS, the PRIMES transport model and TREMOVE”.

DG MOVE – finally – **communicated** the novel solutions and the traditional solutions in different ways. DG MOVE – firstly – set out the problems that the solutions are to address (I.). DG MOVE – secondly – also discussed the solutions as such (V.i. reflection).

DG MOVE set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

As for the IA and for the associated Working Document, DG MOVE pointed to improvements required for amount of transport. It pointed to “transport activity levels”.

As for the White Paper, DG MOVE pointed to alternatives for practices/lifestyles. It pointed to ICT – having “the potential for satisfying certain accessibility needs without additional mobility”.

DG MOVE set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

As for the IA and for the associated Working Document, DG MOVE highlighted improvements required for fuels, as well as for transport modes and for the transport system. It also highlighted alternatives for vehicles, as well as for transport modes and for the transport system.

As for the White Paper, DG MOVE highlighted improvements for fuels, as well as for the transport system. It also highlighted alternatives for the transport system.

Of the traditional problems put forward by DG MOVE (IA and associated Working Document), alternatives for vehicles, and alternatives for transport modes, are most specific.

For alternatives for vehicles, DG MOVE pointed to “dual mode transit” on the one hand, and “self-drive vehicles” on the other hand. For alternatives for transport modes, DG MOVE pointed to “Bus Rapid Transit” and rail. It also pointed to “alternatives to individual conventional transport” – including “... walk and cycle” on the one hand, as well as “car sharing, park & drive” on the other hand.

DG MOVE – moreover – **discussed** the **substantiation** of solutions (V.i. reflection).

Regarding traditional evidence (IV.i.), and the evaluation criteria for analysis, DG MOVE (IA and for the associated Working Document) – for effectiveness – explained that CO<sub>2</sub> emissions refer to “tank-to-wheel emissions” only. This does not include “well-to-tank emissions” – i.e. “emissions produced by the energy consumed in the extraction, processing and distribution of fuels”. This – also – does not include “embodied energy ... emissions” – i.e. “emissions from the manufacture of vehicles and construction of roads and other components of the transport infrastructure”. DG MOVE then noted that not including “well-to-tank emissions” means that “biofuels are [assumed to be] carbon neutral”.

**Combinations** of narrative elements – then – emerge for the key novel instance – for the key novel instance that relates the preparation the final version of the documents by DG MOVE.

Regarding **combinations with a grounding of novel solutions**, DG MOVE – as for the White Paper – put forward a combination with a grounding of both a novel innovation studies-based solution (II.ii.) and a novel SPT-based solution (II.iii.). It only substantiated the former – the innovation studies-based solution (II.ii.). Moreover – in terms of communication – DG MOVE set out a novel problem and traditional problems that the solutions are to address.

To sum up, the combination with a grounding of novel solutions put forward by DG MOVE encompassed both types of novel solutions (II.ii. and II.iii.). Only the innovation studies-based solution (II.ii.) was substantiated. Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address.

Regarding **combinations with a grounding of traditional solutions**, DG MOVE – as for the IA and the associated Working Document – put forward a combination with a grounding of traditional solutions (II.i.). It substantiated these. Moreover – in terms of communication – DG MOVE set out a novel problem and traditional problems that the solutions are to address. In addition, DG MOVE discussed the traditional evidence.

As for the White Paper, DG MOVE put forward a combination with a grounding of traditional solutions. It did not substantiate these. Moreover – in terms of communication – DG MOVE set out a novel problem and traditional problems that the solutions are to address.

To sum up, the traditional combinations put forward by DG MOVE (IA and the associated Working Document, as well as White Paper) encompassed a grounding of traditional solutions. As for the IA and the associated Working Document, DG MOVE on the one hand substantiated the traditional solutions. And, as for the White Paper, DG MOVE on the other hand did not substantiate these. Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address. In addition, DG MOVE discussed the traditional evidence (only IA and the associated Working Document).

The DG MOVE (White Paper) – notably – put forward a novel combination<sup>69</sup>, as well as put forward a traditional combination.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a traditional **most specific combination** emerges. A **traditional** most specific combination, **from** subsidies to R&D and restrictions, as well as vehicle taxes and infrastructure subsidies; **to** effectiveness and cost, as well as models, **to** alternatives for vehicles and alternatives for transport modes.

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Encompassing both types of novel solution – II.ii. and II.iii.

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## **Supplementary material – II. Data for other instances**

I – here – set out the data gathered through content analysis. That data covers actors putting forward solutions and possibly forming coalitions, as well as actors and/or coalitions putting forward combinations of narrative elements. The data is – here, specifically – provided for the other instances.

In this case, I – for ‘I. solutions’ – consider how frequently the subcategories are mentioned. For doing so, I consider the frequency of the ‘units of coding’. Such an approach allows assessing the ‘balance’ of policy instrument mixes for transitions – as defined above. For the subcategories covered, I then address the indicators mentioned (set out in the coding frame), and I address the elaboration of these.

And, in this case – for the narrative elements other than solutions (I.) – I outline the subcategories covered. For the subcategories covered, I then again address the indicators mentioned, and I address the elaboration of these.

## II.i. Focus groups and evaluation study

In this section, I address the other policy work instances in the first of five clusters of steps. These other instances relate to focus groups and to the evaluation study.

I here draw on the results of the analysis for the report on the focus groups by DG TREN (DG TREN 2009 - 1). In addition, I draw on the results of the analysis for the final report of the evaluation study (Steer Davies Gleave 2009).

It is important to note that the final report of the evaluation study is the result of the preparation of the study by “Steer Davies Gleave”, and of its review by DG TREN. An additional analysis of the draft study (before review by DG TREN) would therefore have been appropriate – such a draft version of the study was, however, not available. I acknowledge this limitation.

The focus groups’ report was authored by DG TREN. It did not identify the different actors. I hence here only address one actor for this, the focus groups. The final report of the evaluation study was authored by the research organisation Steer Davies Gleave (Steer hereafter). I hence here only address one actor for this, Steer.

As for the focus groups’ report, the focus groups put forward all **solutions**, but mostly traditional environmental economics-based solutions (II.i.).

As for the evaluation study, Steer put forward all solutions, but mostly traditional solutions (II.i.).

As for the focus groups’ report, the focus groups put forward a **novel** innovation studies-based **solution** (II.ii.). This solution was the fostering of interactions between actors.

The focus groups pointed to “Joint Technology Initiatives”, conducting “more fundamental research ... in partnership with industry”. These initiatives are to focus on “energy solutions and ITS”, as well as on “door-to-door intermodal transport”.

As for the evaluation study, Steer put forward a novel innovation studies-based solution (II.ii.). This solution was also the fostering of interactions between actors.

Steer pointed to the “EU Intelligent Car Initiative” – which “aims at co-ordinating the efforts of stakeholders, citizens, Member States and industry” (Commission 2006). These efforts are to focus on “smarter, safer and cleaner road transport ... reduc[ing] road accidents, congestion, fuel consumption and CO<sub>2</sub> emissions”.

As for the focus groups’ report, the focus groups put forward a novel SPT-based solution (II.iii.). This solution was land-use policies.

The focus groups pointed to “long-term” land-use policies, with “mobility and accessibility” as “important parameters” – in particular for “regional centres” or “urban conurbations”. The focus groups, similarly, pointed to “urban planning ... permits” that are to include “mobility audit[s]”.

As for the evaluation study, Steer put forward novel SPT-based solutions (II.iii.). These solutions also included land-use policies. They could also include the reshaping of meanings or the development of competences.

For land-use policies, Steer pointed to the “integration of land use and transport planning”. These are to focus on “facilitat[ing] walking, cycling and the use of public transport”. For the reshaping of meanings or the development of competences, Steer in general pointed to “encourag[ing] ... teleworking; teleconferencing and home shopping”.

Of the SPT-based solutions (II.iii.), land-use policies are most specific – as put forward by focus groups, and as put forward by Steer. Focus groups pointed to “mobility and accessibility”, as well as to “regional centres” or “urban conurbations”. Steer pointed to walking and cycling, as well as to public transport.

As for the focus groups’ report, the **traditional** environmental economics-based **solutions** (II.i.) put forward by the focus groups included subsidies to R&D. They also included vehicle taxes, as well as infrastructure subsidies with standards. The traditional solutions, moreover, included tolls, distance driven tax and emissions trading, as well as usages taxes more generally.

As for the evaluation study, the traditional solutions put forward by Steer included subsidies to R&D. They also included vehicle standards. The traditional solutions moreover included vehicle subsidies and other subsidies. They finally included fuel taxes, tolls and time based tax.

Three of the traditional solutions put forward by the focus groups (focus groups' report) and by Steer (evaluation study) are most specific. This includes subsidies to R&D – as put forward by the focus groups and by Steer. This also includes infrastructure subsidies with standards – as put forward by focus groups. And, this includes fuel taxes – as put forward by Steer.

For the focus groups, subsidies to R&D are to focus on “alternative engine[s] and fuels” or “energy solutions” on the one hand, as well as “light weight vehicles” on the other hand. These are also to focus on ICT or ITS – in particular on deploying these for tolls, and for “door-to-door intermodal transport”. For Steer, subsidies to R&D are to focus on “technological solutions for road pricing” or tolls. These are also to focus on “cleaner vehicles in urban transport”, as well as on “cleaner technologies” more generally.

Regarding infrastructure subsidies with standards, the focus groups on the one hand pointed to “mass transit” or public transport, as well as “slow modes” (including “dedicated paths for bicycles”). It also pointed to “environmentally friendly energy sources” on the other hand (including biofuels, as well as “charging points for electrical or plug-in hybrid cars”). It also pointed to ITS, “allow[ing] an efficient use of the existing capacity”.

Regarding fuel taxes, Steer pointed to the “harmonisation” of these, with the “exemption of hydrogen and biofuels”.

As for the focus groups' report and as for the evaluation study, the focus groups and Steer **substantiated** the traditional environmental economics-based solutions (II.i.).

As for the focus groups' report, the traditional environmental economics-based evidence (IV.i.) put forward by the focus groups addressed externalities, as well as effectiveness.

As for the evaluation study, the traditional evidence put forward by Steer addressed effectiveness, through studies.

Of the traditional environmental economics-based evidence (IV.i.) positive externalities and effectiveness, as well as studies, are most specific – as put forward by focus groups (focus groups' report), focus groups and Steer (evaluation study), as well as Steer respectively.

Regarding positive externalities, focus groups (focus groups' report) pointed to "the provision of public goods (such as open infrastructure, basic research, etc.)". And, regarding effectiveness, focus groups pointed to "behaviour to be discouraged" – including "driven kilometres" and "environmental characteristics of the vehicle" purchased.

Regarding effectiveness, Steer (evaluation study) in general pointed to "environmental sustainability and transport-related energy problems". It, more specifically, pointed to "GHG emissions", as well as to "vehicle efficiency" and to "use of biofuels", on the one hand. Steer on the other hand pointed to "transport growth". Steer addressed the effectiveness in general through a study, "evaluat[ing] to what extent the measures taken have been effective" – the measures taken since 2001 or 2006. Moreover, Steer referred to a study for the effectiveness more specifically – the "Transport and Environment Reporting Mechanism (TERM)" Report by the European Environment Agency (EEA) (EEA 2006).

As for the focus groups' report and as for the evaluation study, the focus groups and Steer respectively – finally – **communicated** the novel solutions and traditional solutions in different ways. The focus groups and Steer – firstly – set out the problems that the solutions are to address (I.). Steer – secondly – also discussed the solutions as such (V.i. reflection). The focus groups and Steer also discussed undesired solutions as such (III.ii.).

The focus groups (focus groups' report) and Steer (evaluation study) set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

As for the focus groups' report, the focus groups pointed to improvements required for amount of transport and for urban planning. They also pointed to alternatives for practices/lifestyles and for urban planning.

For alternatives for practices/lifestyles, the focus groups pointed to "timetables ... flexibility", as well as "new bundling of working place and living place, in particular for 'idea-intensive' activities and professions". For alternatives for urban planning, they pointed to "changes in the way productive and social activities are organised and localised", as well as to "denser cities".

As for the evaluation study, Steer pointed to improvements for transport demand only.

Of the novel problems put forward, alternatives for practices/lifestyles and alternatives for urban planning are most specific – as put forward by focus groups. For alternatives for practices/lifestyles, focus groups pointed to flexible timetables, as well as to the combination of living and working places. For alternatives for urban planning, focus groups pointed to the organisation and localisation of activities, and to “denser cities”.

The focus groups (focus groups’ report) and Steer (evaluation study) set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

As for the focus groups’ report, the focus groups pointed to improvements required for vehicles. They also pointed to alternatives for fuels and for vehicles, as well as to alternatives for transport modes and for the transport system.

As for the evaluation study, Steer pointed to improvements for transport modes. It also pointed to alternatives for fuels, as well as to alternatives for transport modes and for the transport system.

Of the traditional problems put forward, alternatives for vehicles and alternatives for the transport system are most specific – as put forward by the focus groups (focus groups’ report).

For alternatives for vehicles, focus groups pointed to “new types of vehicles, such as hydrogen cars [on the one hand], maglev trains and podcars [on the other hand]”. For alternatives for the transport system, focus groups on the one hand pointed to ICT or ITS for “enhance[ing] transport efficiency” and for increasing “network efficiency”. They also on the other hand pointed to “modal shift”.

Steer (evaluation study) – moreover – **discussed** the **substantiation** of solutions.

Regarding traditional evidence (IV.i.), Steer explained that as regards studies it – in general – drew on “legislation, legislative proposals, existing literature and statistical data”. It – more specifically – explained that “the sources ... used” were “reports from the European Commission and other EU institutions and agencies”, as well as “evaluation studies that have been undertaken on behalf of the Commission”.

The focus groups (focus groups' report) and Steer (evaluation study) – in addition – **discussed undesired solutions.**

The focus groups opposed the traditional solution (II.i.) vehicles taxes (registration) – and rather called for the traditional solution distance driven tax, as this is “connected .. [to] the behaviour to be discouraged”.

Steer opposed the traditional solution fuel standards with a focus on biofuels – due to the “environmental effects of biofuel production, and the adverse socio-economic impacts that it may have”. More specifically, Steer opposed such fuel standards due to the “indirect land displacement as a negative ... in the production of biofuels”.

**Combinations** of narrative elements – then – emerge for the other policy work instances – for the other instances that relate to the focus groups and to the evaluation study.

Regarding **novel combinations**, the focus groups – as for the focus groups' report – put forward a combination with a grounding of both a novel innovation studies-based solution (II.ii.) and a novel SPT-based solution (II.iii.). They did not substantiate these. Moreover – in terms of communication – the focus groups set out novel problems and traditional problems that the solutions are to address. In addition, the focus groups discussed an undesired traditional solution – calling for another traditional solution.

As for the evaluation study, Steer put forward a combination with a grounding of both a novel innovation studies-based solution (II.ii.) and novel SPT-based solutions (II.iii.). They did not substantiate these. Moreover – in terms of communication – Steer set out a novel problem and traditional problems that the solutions are to address. In addition, Steer discussed traditional evidence. It also discussed an undesired traditional solution.

To sum up, the novel combinations put forward by the focus groups and by Steer encompassed both types of novel solutions (II.ii. and II.iii.). They did not substantiate these. Moreover – in terms of communication – they set out novel problems and traditional problems that the solutions are to address. In addition, only Steer discussed traditional evidence. Finally, focus groups and Steer discussed undesired traditional solutions.

Regarding **traditional combinations**, the focus groups – as for the focus groups’ report – put forward a combination with a grounding of traditional solutions (II.i.). They substantiated these. Moreover – in terms of communication – the focus groups set out novel problems and traditional problems that the solutions are to address. In addition, the focus groups discussed an undesired traditional solution – calling for another traditional solution.

As for the evaluation study, Steer put forward a combination with a grounding of traditional solutions. It substantiated these. Moreover – in terms of communication – Steer set out a novel problem and traditional problems that the solutions are to address. In addition, Steer discussed traditional evidence. It also discussed an undesired traditional solution.

To sum up, the traditional combinations put forward by the focus groups and by Steer encompassed a grounding of traditional solutions. They substantiated these. Moreover – in terms of communication – they set out novel problems and traditional problems that the solutions are to address. In addition, only Steer discussed traditional evidence. Finally, focus groups and Steer discussed undesired traditional solutions.

The focus groups and Steer – notably – put forward a novel combination<sup>70</sup>, as well as put forward a traditional combination.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a novel **most specific combination** and a traditional most specific combination emerge.

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Encompassing both types of novel solution – II.ii. and II.iii.

A **novel** most specific combination, **from** land-use policies; **to** alternatives for practices/lifestyles, as well as alternatives for urban planning.

In addition, a **traditional** most specific combination, **from** subsidies to R&D, infrastructure subsidies with standards, as well as fuel taxes; **to** positive externalities, as well as effectiveness and studies; **to** alternatives for vehicles and alternatives for the transport system.

## **II.ii. Consultations and high-level conferences**

In this section, I address the other policy work instances in the second of five clusters of steps. These other instances relate to the stakeholder consultations and to the first high-level conference.

I here primarily draw on the results of the analysis for the responses to the first stakeholder consultation (ACEA 2009 - 1; ACEM 2009; BusinessEurope 2009 - 1; CER 2009 - 1; ECF 2009 - 1; EIM 2009 - 1; ERF 2009 - 1; Eurelectric 2009 - 1; EUROCHAMBRES 2009 - 1; EUROCITIES 2009; FIA 2009 - 1; FIEC 2009 - 1; Going-Electric 2009; IRU 2009 - 1; Mobility for Prosperity in Europe 2009 - 1; UITP 2009 - 1; UNIFE 2009 - 1). In addition, I primarily draw on the results of the analysis for the summary record of the first high-level conference published by DG TREN (DG TREN 2009 - 2 ). I – also – draw on the results of the analysis for the Commission Communication (Commission 2009), summarising the results of the first consultation and of the first high-level conference.

I – moreover, primarily – draw on the results of the analysis for the responses to the second stakeholder consultation (ACEA 2009 - 2; AEGPL 2009; ASECAP 2009; AT 2009; BusinessEurope 2009 - 2; CEEP 2009; CEMR 2009; Centrum für Europäische Politik 2009; CER 2009 - 2; CZ 2009; DK 2009; EAA 2009; EARPA 2009; ECF 2009 - 2; ECTRI 2009; EHA 2009; EIM 2009; EPF 2009; EPTO 2009; ERF 2009; ETRMA 2009; Eurelectric 2009 - 2; EUROCHAMBRES 2009 - 2; FIA 2009 - 2; FIEC 2009 - 2; HU 2009; IE 2009; IET 2009; IRU 2009 - 2; Leaseurope 2009; LINK Consortium 2009; METREX 2009; Mobility for Prosperity in Europe 2009 - 2; NO 2009; SE 2009; SI 2009; SIKA 2009; T&E 2009; UITP 2009 - 2; UK 2009; UNIFE 2009 - 2; VERT Association 2009). I – also – draw on the results of the analysis for the summary report of the second consultation produced by DG TREN (DG TREN 2009 - 3).

It is important to note that the summary record of the first high-level conference only provided a summary of the contributions of the panellists. An additional analysis of the contributions of all the high-level conference participants would have been appropriate – a summary of contributions of actors beyond the panellists was, however, not available. I acknowledge this limitation.

The responses to the two consultations – as well as the summary record of the first high-level conference and the summary report of the second consultation – identified the different actors, though only partially for the summary report of the second consultation. I hence address the different actors for these. The Communication did not identify the different actors. I hence only

address one actor for this, DG TREN. I also address one actor for the parts of the summary report of the second consultation not identifying actors, also DG TREN.

Considering the extent of the analysis results covered in this section, I have split the section into two subsections.

The first subsection (**Section VI.2.1.**) covers the other instances relating to the first stakeholder consultation and the first high-level conference. The second subsection (**Section VI.2.2.**) covers the other instance relating to the second stakeholder consultation.

### II.ii.a. First consultation and first high-level conference

As for the consultation responses, on the one hand, most actors put forward more to mostly to only traditional environmental economics-based **solutions** (II.i.). On the other hand, some actors put forward traditional solutions, as well as novel SPT-based solutions (II.iii.).

As for the high-level conference summary record (conference record hereafter), on the one hand various actors put forward only traditional environmental economics-based solutions (II.i.). On the other hand, one actor put forward a traditional solution and a novel SPT-based solution (II.iii.). Another actor put forward only innovation studies-based solutions (II.ii.).

As for the Communication, DG TREN put forward mostly traditional environmental economics-based solutions (II.i.), as well as one innovation studies-based solution (II.ii.) and one SPT-based solution (II.iii.).

As for the consultation responses, three actors put forward **novel** innovation studies-based **solutions** (II.ii.). Two actors (Eurelectric – Union of the Electricity Industry, economic stakeholder<sup>71</sup>; Going-Electric – European Association for Battery Electric Vehicles, road transport) put forward targeted subsidies to R&D only – resulting in a coalition. One actor (UNIFE – Association of the European Rail Supply Industry, rail transport) put forward the fostering of interactions between actors only.

As for the conference record, one actor (ERTICO-ITS Europe<sup>72</sup>) put forward targeted subsidies to R&D, in combination with the fostering of interactions between actors.

As for the Communication, DG TREN also put forward the fostering of interactions between actors only.

Regarding targeted subsidies to R&D – as for the consultation responses – Eurelectric pointed to “electric vehicle research, including batteries”. And, Going-Electric, similarly, pointed to “automotive battery technology”.

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The stakeholder categories referred to here were developed by DG TREN.

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ERTICO-ITS Europe – European Road Transport Telematics Implementation Coordination Organisation - Intelligent Transport Systems & Services Europe.

As for the conference record, ERTICO-ITS Europe pointed to “cooperative mobility systems” – including vehicles and “in-vehicle ... infrastructure”, as well as “roadside infrastructure” such as “local traffic control systems”.

Regarding the fostering of interactions between actors – as for the consultation responses – UNIFE highlighted the “European Rail Research Council (ERRAC)” [bringing together “railway undertakings, infrastructure managers, manufacturers, the European Commission, the European Union Agency for Railways, EU Member States, academics and users’ groups” (ERRAC 2020)] producing “annual concrete and detailed roadmaps for future common European Research activities”.

As for the conference record, ERTICO-ITS Europe highlighted “roadmaps ... for cooperative mobility systems ... creating effective EU-level and local partnerships of key stakeholders for deployment of initiatives”. These roadmaps are to “provid[e] frameworks for technical standards, financial instruments, public-private partnerships and legislation/regulation, [and to] support R&D and large scale field testing of [such] new cooperative systems”.

Of the novel innovation studies-based solutions (II.ii.), targeted subsidies to R&D and the fostering of interactions between actors are most specific – as both put forward by ERTICO-ITS Europe (conference record).

Regarding targeted subsidies to R&D, ERTICO-ITS Europe pointed to “cooperative mobility systems”, including vehicles and “roadside infrastructure”. Regarding the fostering of interactions between actors (between EU-level and local actors), it pointed to roadmaps, providing “frameworks” and financial support for such cooperative systems.

As for the consultation responses, eight actors put forward novel SPT-based solutions (II.iii.). Three actors (EUROCHAMBRES – Association of European Chambers of Commerce and Industry, economic stakeholder; ECF – European Cyclists’ Federation, road transport; FIA – Fédération Internationale de l'Automobile, road transport) put forward the development of competences, in combination with land-use policies – resulting in a coalition. One of the coalition actors (EUROCHAMBRES) in addition put forward the reshaping of meanings. In addition three actors (EUROCITIES – network of major European cities, cities and regions; EIM – European Rail Infrastructure Managers, rail transport; Going-Electric, road transport) put forward the reshaping of meanings only – resulting in another coalition. Finally, one actor (FIEC – European Construction

Industry Federation, economic stakeholder) put forward land-use policies only. And, another actor (CER – Community of European Railway and Infrastructure Companies, rail transport) put forward land-use policies, in combination with fostering or development of counter-movements.

As for the conference record, one actor (ACEA - European Automobile Manufacturers Association, road transport) pointed to novel SPT-based solutions (II.iii.) in general – which could include the reshaping of meanings or the development of competences.

As for the Communication, DG TREN also put forward land-use policies.

Regarding the development of competences – as for the consultation responses – EUROCHAMBRES pointed to “driver education curricula” – with a focus on “eco-driving”, as well as with a focus on “correct behaviour towards non-motorized traffic users”. FIA, similarly, pointed to “fuel efficient driving ... training”. In addition, ECF highlighted “‘bikeability’ cycle training”.

As for the conference record, ACEA in general pointed to “an integrated approach ... includ[ing] eco-driving” – which could include the reshaping of meanings or the development of competences.

Regarding the reshaping of meaning – as for the consultation responses – EUROCHAMBRES, in general, highlighted “raising awareness via the media ... disseminating information about available sustainable transport modes and enhancing their image”. In addition, EUROCITIES, more specifically, highlighted “promot[ing] cycling and walking with a focus on health”. And, EIM highlighted “better promot[ing] the image of safety and environment-friendliness of the railways to the public”. Moreover, Going-Electric, even more generally, highlighted “communicating new values – with a focus on “rethinking mobility” and “rethinking lifestyles”. “Effective communication [in this case] includes: TV commercials, press releases, consumer experience in test-drives, interviews of skilful opinion leaders, online videos, blogs and portals”. As for the conference record, ACEA – again – in general highlighted “an integrated approach ... include[ing] eco-driving” – which could include the reshaping of meanings or the development of competences.

Regarding the fostering or development of counter-movements – as for the consultation responses – CER pointed to “a wider reshaping of industrial, economic, energy and development policies”. This could include “boosting local tourism and the local economy”.

Finally, regarding land-use policies – as for the consultation responses – FIA, in general, highlighted “better planning”. FIEC highlighted “sustainable development planning”. This is to “take into account altogether development of urban areas (with business and social activities), [as well as] the

coherence and cohesion of the whole territory and the transport needs". In addition, EUROCHAMBRES highlighted "an integrated approach to planning ...", "... viewing urban transport in connection with urban planning, as well as land use and transport planning in the communities surrounding the city". Moreover, ECF, more specifically, highlighted "cycle-friendly urban planning" for new developments. This is to focus on "living, working and shopping need to be bundled", as well as on "easy access ... by cycle and other sustainable transport modes". CER highlighted "better planning controls", with a focus on the "more concentrated development" of cities.

As for the Communication, DG TREN highlighted that "when taking land-use planning or location decisions, public authorities ... should take into account the consequences of their choices in terms of travel needs".

Of the SPT-based solutions (II.iii.), reshaping meanings and fostering or development of counter-movements are most specific – as put forward by EUROCITIES and Going-Electric, as well as CER, respectively (consultation responses). Moreover, land-use policies – as put forward by ECF (consultation responses) – is most specific.

Regarding the reshaping meanings, EUROCITIES pointed to "promot[ing] cycling and walking with a focus on health". Going-Electric, more generally, pointed to "communicating new values", with a focus on "rethinking mobility" and "lifestyles". It also pointed to different communication channels. Regarding the development of counter-movements, CER highlighted "reshaping ... industry[y], econom[y], energy and development". This could include "boosting local tourism and the local economy". Regarding land-use policies, ECF pointed to "cycle-friendly urban planning" for new developments. This is to focus on the "bundl[ing]" of activities, and on easy access ... by ... sustainable transport modes".

As for the consultation responses, seventeen actors put forward **traditional** environmental economics-based **solutions** (II.i.). Some of these put forward traditional solutions together with other actors – resulting in coalitions.

A coalition of three actors (EUROCITIES; UNIFE; Going-Electric) put forward restrictions, in combination with vehicle taxes or vehicle subsidies, in combination with infrastructure subsidies with standards or other subsidies, as well as in combination with usage taxes (in general), and transport taxes or tolls (specifically). One coalition actor (EUROCITIES) in addition put forward subsidies to R&D. Another coalition of three actors (BusinessEurope, economic stakeholder; UITP –

International Association of Public Transport, public transport; ERF – European Union Road Federation, road transport) put forward infrastructure subsidies with standards only.

As for the conference record, three actors put forward traditional solutions. Two actors (Commissioner of Transport for London; Institute for Economic Policy Research, IWW – University of Karlsruhe) put forward tolls – resulting in a coalition. Another actor (ACEA) put forward infrastructure subsidies with standards.

As for the Communication, DG TREN put forward subsidies to R&D, fuel standards and vehicle standards, vehicle taxes, infrastructure subsidies with standards, as well as fuel taxes and tolls.

Six of the traditional solutions – as put forward by the coalitions and by the actors – are most specific. This includes subsidies to R&D put forward by DG TREN (Communication). In addition, this includes infrastructure subsidies with standards – as put forward by EUROCITIES, UNIFE, and ERF (consultation responses), as well as by DG TREN (Communication). This also includes other subsidies put forward by Going-Electric (consultation responses).

Regarding subsidies to R&D, DG TREN (Communication), in general, highlighted “R&D ... for technologies that are not yet mature for market application”. It also, more specifically, highlighted “the development of alternative solutions for sustainable transport”, as well as “demonstration projects” for “new transport systems and vehicle technologies”.

Regarding infrastructure subsidies with standards, EUROCITIES (consultation responses) on the one hand pointed to “more sustainable transport modes (including walking and cycling)”, as well as to “public transport”. It also pointed to “electric and hydrogen vehicles ... infrastructure” on the other hand. UNIFE (consultation responses), in general, pointed to “improvement of the quality of public transport” on the one hand. It also, more specifically, pointed to “rail connection at transport hubs”, as well as to “seamless connections in urban and suburban transport”. UNIFE – moreover, as regards infrastructure standards – pointed to “assessment” of the “environmental performance of the infrastructure and [of] its operation” on the other hand. In addition, ERF (consultation responses) pointed to “infrastructure systems and services supporting eco-driving”. It also – as regards infrastructure standards – pointed to “a methodology to audit the environmental quality of road projects during their complete life cycle, from planning to maintenance, including not only planning, materials, construction, maintenance, service and demolition, but also the evaluation of the optimisation of the energy consumption of vehicles”. Moreover, DG TREN (Communication) pointed to “infrastructure that supports new vehicles, for example smart grids for electric transport or hydrogen distribution networks”.

Regarding other subsidies, Going-Electric (consultation responses) highlighted “tax reduction for households owning at least one BEV [Battery Electric Vehicle]” on the one hand, as well as “increased tax for families owning more than one Fossil Fuel Car” on the other hand. It also pointed to “subsidies for investments in the production of BEVs and their parts”.

The actors – finally – **communicated** the novel solutions and the traditional solutions in different ways. The actors – firstly – set out the problems that the solutions are to address (I.). The actors – secondly – discussed the solutions as such (V.ii. critique). They also discussed undesired solutions as such (III.ii.). The actors – thirdly – discussed solutions in relation to actors (III.i. heroes).

The actors set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

Three actors (EUROCITIES; CER; DG TREN – Communication) pointed to improvements required for the amount of transport, as well as for travel need or transport demand. For improvements required for the amount of transport, DG TREN – specifically – pointed to “transport volumes”, as well as to “transport ... sector ... activity”. Moreover, three actors (EUROCITIES; UITP; DG TREN – Communication) highlighted improvements required for urban planning. EUROCITIES highlighted “the distance between shops/home and the intermodal hubs in the cities”. UITP and DG TREN also highlighted “urban sprawl”. DG TREN (Communication) also pointed to improvements required for practices/lifestyles, pointing to a “different concept of mobility”.

Two actors (BusinessEurope; DG TREN – Communication) highlighted alternatives for practices/lifestyles. BusinessEurope highlighted “eco-driving”. DG TREN highlighted “virtual’ accessibility through information technology (teleworking, e-Government, e-Health, etc.)”. Finally, FIA highlighted alternatives for urban planning. It highlighted “the structure of cities as a whole and at the individual needs of its citizens”.

Of the novel problems put forward, improvements required for the amount of transport and for urban planning are most specific – as put forward by DG TREN (Communication), as well as EUROCITIES, respectively. DG TREN pointed to “transport volumes”, as well as to “transport ... sector ... activity”. EUROCITIES pointed to “the distance between shops/home and the intermodal

hubs in the cities”. Moreover, alternatives for practices/lifestyles put forward by DG TREN (Communication) is most specific. It pointed to “virtual’ accessibility through information technology (teleworking, e-Government, e-Health, etc.)”.

The actors set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

As for the consultation responses, seven actors pointed to improvements required for vehicles, as well as to improvements required for transport modes and for the transport system. In addition, eleven actors pointed to alternatives for fuels and for vehicles, as well as to alternatives for modes and for the transport system.

As for the conference record, three actors (ERTICO-ITS Europe; ACEA; Commissioner of Transport for London) pointed to alternatives for fuels, as well as to alternatives for the transport system.

As for the Communication, DG TREN pointed to improvements required for vehicles, as well as to improvements required for the transport system. It also pointed to alternatives for fuels and for vehicles, as well as to alternatives for modes and for the transport system.

Of the traditional problems put forward by actors, alternatives for fuels as put forward by Going-Electric is most specific. In addition, alternatives for modes are most specific – as put forward by BusinessEurope and by UNIFE, as well as put forward by FIA and ECF. Moreover, alternatives for the transport system are most specific – as put forward by FIEC and by EIM, as well as put forward by DG TREN (Communication).

Regarding alternatives for fuels, Going-Electric pointed to “low GHG electricity sources such as renewable, nuclear [on the one hand] and CCS plants” on the other hand.

Regarding alternatives for modes, UNIFE highlighted “modal shift from road ... to rail”, to “trams, light rail and commuter trains”. ECF highlighted “cycling” and ITS. It, specifically, highlighted “traffic management: VMS [“Variable Message Systems”] for bicycles, traffic lights with faster green when raining, priority for cyclists”. Moreover, BusinessEurope highlighted “improving infrastructure and traffic management of road, [and] rail” on the one hand. It also highlighted “improved energy efficiency and management of public transport” on the other hand. FIA highlighted “car pooling, car sharing” on the one hand. It also highlighted “efficient integrated public transport”, as well as “walking and cycling” on the other hand.

Regarding alternatives for the transport system, FIEC pointed to an “efficient use of different modes ... in combination”, including through “improving the interconnections between the various modes

of transport". It also pointed to "optimization of the existing infrastructure", as well as to the "maintenance and renovation of the infrastructure". EIM pointed to "increasing computer software and hardware capabilities for traffic control" on the one hand. It also pointed to "low maintenance ... new infrastructure" on the other hand. In addition, DG TREN pointed to "shifting transport to more efficient modes", to "'modal shift' towards more environmentally friendly modes". It also pointed to the "integration of the different modes". And, DG TREN pointed to "'soft infrastructures', like intelligent transport systems for road ... and traffic management systems for rail ...".

The actors – moreover – **discussed the solutions** and their **substantiation** (V.ii. critique).

Regarding evidence, ERF called for "transport policies [to be] based on a fair analysis of facts and figures".

Regarding traditional evidence (IV.i.), as well as cost-effectiveness and cost-benefit analysis, FIA noted that "a proper assessment of the so-called external costs [by the Commission] is outstanding [and that] ... an internalisation without a cost-benefit analysis is a nonsense". It also noted that "the study on which the Commission bases its policy proposals is [thus] merely a compilation of research results obtained on the basis of wrong assumptions".

Regarding a traditional solution (tolls), and traditional evidence, EUROCHAMBRES noted that "it seems ... that often only their positive effects [of tolls] are being highlighted, whereas those aspects where the systems do not function very well seem to be overlooked". It called on the "EU ... [to] contribute to more clarity ... by supporting research and unbiased evaluations of existing transport policy measures".

The actors – moreover – **discussed undesired solutions** (III.ii.).

EUROCHAMBRES opposed the traditional solution tolls, as this leads to "a fall in customer numbers".

Moreover, FIA opposed the traditional solution restrictions of access in cities. This "lead[s] to loss of welfare", it "affects the social and economic welfare of cities and their inhabitants".

The actors – finally – **discussed solutions in relation to actors.**

Firstly, several actors assigned traditional solutions (II.i.) to different heroes (III.i.).

BusinessEurope assigned infrastructure subsidies with standards to the “EU and national level”.

Moreover, Eurelectric assigned restrictions to MSs. It also assigned vehicle standards and vehicle taxes to MSs with the EU. For vehicle standards and vehicle taxes, it called for a strengthened role of the EU (“common assessment system”; “encourage”). It also assigned subsidies to R&D to the EU.

UNIFE assigned infrastructure subsidies with standards to MSs with the EU. It also assigned tolls to the EU. For all of these, it called for a strengthened role of the EU (“legal framework for green infrastructure procurement”; “European legal framework”).

EUROCITIES assigned infrastructure subsidies with standards to “local, regional, national or European”. It also assigned subsidies to R&D and vehicle standards, as well as restrictions and tolls, to the EU. For restrictions and tolls, it called for a strengthened role of the EU (“guidance”).

In addition, two actors assigned traditional solutions (II.i.) and novel solutions (II.iii. only) to different heroes (III.i.).

FIEC assigned land-use policies (novel solution) to MSs. It also assigned subsidies to R&D, as well as infrastructure subsidies with standards (traditional solutions), to the EU.

EUROCHAMBRES assigned the development of competences, as well as land-use policies (novel solutions), to MSs and to “Member States or region” respectively. It also assigned subsidies to R&D (traditional solution) to the EU.

**Combinations** of narrative elements – then – emerge for the other policy work instances – for the other instances that relate to the first stakeholder consultation and to the first high-level conference.

Regarding **novel combinations** – as for the consultation responses – two actors (Eurelectric; Going-Electric) – in a coalition – put forward a combination with a grounding of an **innovation studies-based solution** (II.ii.). The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out traditional problems that the solution is to address. In addition, the coalition discussed traditional solutions in relation to actors (III.i. heroes).

In addition, one actor (UNIFE) put forward a combination with a grounding of an innovation studies-based solution (II.ii.). The actor did not substantiate this. Moreover – in terms of communication – UNIFE set out traditional problems that the solution is to address. In addition, the coalition discussed traditional solutions in relation to actors (III.i. heroes).

As for the conference record, one actor (ERTICO-ITS Europe) put forward a combination with a grounding of two innovation studies-based solutions (II.ii.). It did not substantiate these. Moreover – in terms of communication – ERTICO-ITS Europe set out a traditional problem that the solutions are to address.

Moreover – as for the consultation responses – three actors (EUROCHAMBRES; ECF; FIA) – in a coalition – put forward a combination with a grounding of two **SPT-based solutions** (II.iii.). The coalition did not substantiate these. Moreover – in terms of communication – the coalition set out a novel problem and traditional problems that the solutions are to address. In addition, the coalition discussed a traditional solution, as well as traditional evidence. It also discussed undesired traditional solutions. Finally, the coalition discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

Another coalition – a coalition of three actors (EUROCITIES; EIM; Going-Electric) – put forward a combination with a grounding of a SPT-based solution (II.iii.). The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solution is to address. In addition, the coalition discussed traditional solutions in relation to actors (III.i. heroes).

In addition, FIEC put forward a combination with a grounding of a SPT-based solution (II.iii.). It did not substantiate this. Moreover – in terms of communication – FIEC set out traditional problems

that the solution is to address. In addition, FIEC discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

CER put forward a combination with a grounding of two SPT-based solutions (II.iii.). It did not substantiate these. Moreover – in terms of communication – CER set out a novel problem and traditional problems that the solutions are to address.

As for the conference record, ACEA put forward a combination with a grounding of possibly two SPT-based solutions (II.iii.). It did not substantiate these. Moreover – in terms of communication – ACEA set out a traditional problem that the solutions are to address.

As for the Communication, DG TREN put forward a novel combination with a grounding of both an innovation studies-based solution (II.ii.) and a SPT-based solution (II.iii.). It did not substantiate these. Moreover – in terms of communication – it set out novel problems and traditional problems that the solutions are to address.

To sum up, the novel combinations put forward by the actors encompassed one type of novel solution (coalitions and actors), as well as both types of novel solutions (II.ii. and II.iii.). For the latter, one actor – in two coalitions – put forward two separate novel combinations, each encompassing one type of novel solution (II.ii. and II.iii.) (Going-Electric – consultation responses). And, another actor put forward one novel combination encompassing the two types of novel solutions (DG TREN – Communication). These respective solutions were not substantiated.

Moreover – in terms of communication – the actors on the one hand only set out traditional problems that the solutions are to address. On the other hand, two coalitions and two actors (consultation responses and Communication) set out novel problems and traditional problems. In addition, three actors did not discuss (consultation responses, conference record and Communication). Other coalitions and actors – overall – discussed traditional solutions in relation to actors (III.i. heroes) (consultation responses). With the exception of one actor discussing novel solutions and traditional solutions in relation to actors (III.i. heroes). And, a coalition also discussing these – as well as in addition discussing a traditional solution and traditional evidence, and undesired traditional solutions.

Regarding **traditional combinations** – as for the consultation responses – three actors (EUROCITIES; UNIFE; Going-Electric) – in a coalition – put forward put forward a combination with a grounding of four traditional solutions (II.i.). The coalition did not substantiate these. Moreover – in terms of

communication – the coalition set out novel problems and traditional problems that the solutions are to address. In addition, the coalition discussed traditional solutions in relation to actors (III.i. heroes).

Another coalition of three actors (BusinessEurope; UITP; ERF) put forward a combination with a grounding of a traditional solution. The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solution is to address. In addition, the coalition discussed evidence. It also discussed a traditional solution in relation to actors (III.i. heroes).

As for the conference record, two actors (Commissioner of Transport for London; Institute for Economic Policy Research, IWW – University of Karlsruhe) – in a coalition – put forward a combination with a grounding of a traditional solution. The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out traditional problems that the solution is to address.

ACEA put forward a combination with a grounding of a traditional solution. It did not substantiate this. Moreover – in terms of communication – ACEA set out a traditional problem that the solution is to address.

As for the Communication, DG TREN put forward a combination with a grounding of traditional solutions. It did not substantiate these. Moreover – in terms of communication – it set out novel problems and traditional problems that the solutions are to address.

To sum up, the traditional combinations put forward by the actors encompassed a grounding of a traditional solution (two coalitions and an actor – consultation responses and conference record), a grounding of four traditional solutions (one coalition – consultation responses), as well as a grounding of traditional solutions (DG TREN, single actor – Communication). The actors did not substantiate these.

Moreover – in terms of communication – the coalitions and the actors overall set out novel problems and traditional problems (consultation responses and Communication) – with the exception a coalition and of an actor (conference record) setting out traditional problems only. In addition, the actors did not discuss overall – with the exception of two coalitions (consultation responses) discussing evidence, as well as discussion traditional solutions in relation to actors (III.i. heroes).

UNIFE, EUROCITIES, and Going-Electric (consultation responses), as well as DG TREN (Communication) – notably – each put forward a novel combination<sup>73</sup>, as well as put forward a traditional combination. In this case, EUROCITIES and Going-Electric did so in the same coalition for both (for Going-Electric, one of the two novel combinations). And, UNIFE only did so in a coalition for the latter.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a novel **most specific combination** and a traditional most specific combination emerge.

A **novel** most specific combination, **from** targeted subsidies to R&D and the fostering of interactions between actors, as well as reshaping meanings, fostering or development of counter-movements and land-use policies; **to** improvements required for the amount of transport and for urban planning, as well as alternatives for practices/lifestyles.

In addition, a **traditional** most specific combination, **from** subsidies to R&D, as well as infrastructure subsidies with standards and other subsidies; **to** alternatives for fuels, as well as alternatives for transport modes and alternatives for the transport system.

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Encompassing one type as well as both types of novel solution, respectively – II.ii. and II.iii. as well as II.ii. and II.iii. For Going-Electric, encompassing both types of novel solution in two novel combinations – II.ii. and II.iii.

### II.ii.b. Second consultation

On the one hand, most actors put forward more to mostly to only traditional environmental economics-based solutions (II.i.). On the other hand, some actors put forward traditional solutions, as well as novel SPT-based solutions (II.iii.) or novel innovation studies-based solutions (II.ii.). Moreover, some actors put forward all solutions. And, one actor put forward only novel solutions, with mostly novel innovation studies-based solutions (II.ii.).

As for the summary report, most actors put forward more to only traditional environmental economics-based solutions (II.i.). One actor put forward only novel solutions.

Ten actors put forward **novel** innovation studies-based **solutions** (II.ii.). These solutions were targeted subsidies to R&D, the fostering of interactions between actors, as well as training in relation to R&D.

Three actors (Eurelectric – Union of the Electricity Industry, economic stakeholder<sup>74</sup>; EHA – European Hydrogen and Fuel Cell Association, economic stakeholder; AEGPL – European LPG Association, road transport) put forward targeted subsidies to R&D, in combination with the fostering of interactions between actors – resulting in a coalition. Six actors (Hungary, government; UITP – International Association of Public Transport, public transport; EIM – European Rail Infrastructure Managers, rail transport; UNIFE – Association of the European Rail Supply Industry, rail transport; ECTRI – European Conference of Transport Research Institutes, research; ERF – European Union Road Federation, road transport) put forward the fostering of interactions between actors only – resulting in another coalition. In addition, one actor (EARPA – European Automotive Research Partners Association, road transport) put forward training in relation to R&D only.

As for the summary report, one stakeholder category (economic stakeholders) rather put forward targeted subsidies to R&D only.

Regarding targeted subsidies to R&D, Eurelectric highlighted “emerging electric drive and battery technologies”, as well as “demonstration projects with regards to smart grids”. EHA highlighted “fuel cell buses”. In addition, AEGPL highlighted “alternative gaseous fuels” – including “LPG could

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The stakeholder categories referred to here were again developed by DG TREN.

... used as a feedstock for the on-site production of hydrogen at a filling station”, “blend of Autogas and diesel”, and “bio-DME”.

As for the summary report, economic stakeholders pointed to “batteries and vehicle-to-grid technology”.

Regarding the fostering of interactions between actors, Eurelectric pointed to the “cooperation among the various stakeholders to ensure a clear, stable regulatory framework conducive to investments”. EHA pointed to various “proposed European Industrial Initiatives” – to the “EU Strategic Energy Technology Plan”, as well as to “EU Technology Platforms”. These are to focus on “sustainable transport”, and on “developing more synergies”. And, “the creation of the European Technology Platform on Electric Mobility ... could become the focal point of collaboration with relevant EU Technology Platforms”. In addition, AEGPL pointed to the “European Green Cars Initiative ... and [to the] Joint Technology Initiatives”. These are to focus on “alternative gaseous fuels”. And, it pointed to the “creation of an alternative fuel technology platform, bringing together distributors, car-manufacturers, equipment makers, researchers, and policy-makers with a view to enhancing the performance of gaseous fuelled engines and vehicles as a whole”. Moreover, Hungary pointed to “further joint technological initiatives”, with a focus on “sustainable mobility”. UITP pointed to “setting up a European Research Forum on Urban Mobility”, that is to “develop ... the research priorities ... [for] urban mobility actions and programs”. EIM pointed to the establishment of “a European internet portal and forum on urban mobility”. UNIFE pointed to the “European Rail Research Council (ERRAC)” – that “coordinat[ed] ... EU funded projects on non-competitive research” and that developed a “Strategic Rail Research Agenda”. ECTRI pointed to the “Technology Platforms .. produc[ing] ... converging visions of the future transport system in their Strategic Research Agendas” (including “deployment options and optimum conversion strategies for alternative fuels”). It also pointed to the “eight Thematic Working Groups of ECTRI are preparing Strategic Research Agenda’s for their activity fields” (including “urban mobility ... energy and climate change”). ECTRI also pointed to “four Networks ... of Excellence ... making a similar effort”. In addition, the ERF pointed to “the development of an Intelligent Road Initiative, following the successful example of the Intelligent Car Initiative”.

Regarding training in relation to R&D, EARPA highlighted “the need for educated and well-skilled people”, and “dedicated EU-programs such as Marie-Curie” in this regard. These are to focus on “new ICT-based transport modes and alternative power trains”.

Of the novel innovation studies-based solutions (II.ii.), targeted subsidies to R&D, the fostering of interactions between actors, as well as training in relation to R&D are most specific – as put forward by AEGPL, again AEGPL, as well as EARPA, respectively.

Regarding targeted subsidies to R&D, AEGPL pointed to various “alternative gaseous fuels”. Regarding the fostering of interactions between actors, AEGPL pointed to the “creation of an alternative fuel technology platform” – bringing together various actors, as well as focusing on engines and on vehicles. Regarding training in relation to R&D, EARPA pointed to training people through “dedicated EU-programs”, with a focus on “new ICT-based transport modes and alternative power trains”.

Twenty actors put forward novel SPT-based solutions (II.iii.). These solutions were the reshaping of meanings, the development of competences, as well as land-use policies.

Four actors (T&E – Transport & Environment, environmental organisation; Sweden, government; UK, government; UNIFE) put forward the reshaping of meanings only – resulting in a coalition. In addition, twelve actors (EUROCHAMBRES – Association of European Chambers of Commerce and Industry, economic stakeholder; FIEC – European Construction Industry Federation, economic stakeholder; EHA; Denmark, government; Norway, government; UITP; CER – Community of European Railway and Infrastructure Companies, rail transport; LINK Consortium – European Forum on Intermodal Passenger Travel, research; SIKA – Swedish Institute for Transport and Communications Analysis, research; ECTRI; EARPA; ECF – European Cyclists’ Federation, road transport) put forward land-use policies only – resulting in another coalition. Moreover, two actors (ACEA - European Automobile Manufacturers Association, road transport; IRU - International Road Transport Union, road transport) put forward the development of competences only – resulting in yet another coalition. Finally, one actor (EPTO – European Passenger Transport Operators, public transport) put forward the reshaping of meanings, in combination with land-use policies. And, another actor (FIA – Fédération Internationale de l'Automobile, road transport) put forward the development of competences, in combination with land-use policies.

As for the summary report, one stakeholder category (cities and regions) also put forward land-use policies only.

Regarding the reshaping of meanings, T&E highlighted the fostering “non-motorised transport” by “promoting active lifestyles”. Sweden highlighted “encourag[ing] change in how the users of the transport system behave through for instance the promotion of eco-driving”. UK highlighted

“education”, with a focus on “sustainable mobility choices such as encouraging the use of public transport and walking and cycling”. Finally, UNIFE, in general, highlighted “education initiatives ... modify[ing] citizens’ habits”. Moreover, EPTO – in general, similarly – highlighted “education” with a focus on “life style choices”.

Regarding land-use policies, EUROCHAMBRES pointed to “land planning and transport planning ... cooperat[ion]” – with the “location of schools, enterprises, hospitals, retailers (etc.) hav[ing] an impact on the transport needs and organisation”. FIEC pointed to “smarter land-use planning (taking into account the various transport modes)”, as well as more broadly to “sustainable development planning” [taking into account “the development of urban areas (with business and social activities), the coherence and cohesion of the entire area and the transport needs”]. EHA pointed to “sound local planning that allows easy access to public transport befitting of individual transport modes”. Denmark pointed to “national planning ... secur[ing] better accessibility and reduce ‘forced’ mobility as a consequence of service functions and urban scattering”. Norway, in general, pointed to “a conscious land use policy”. UITP, more fundamentally, pointed to research with a focus on “transport demand ... [and] urban structure, land use, urban sprawl”. CER pointed to “spatial planning” that is “urban sprawl ... mitigat[ing]”. This is to focus on “more concentrating housing and land-use”, and on “facilitat[ing] the access of cycling and walking to stations”. LINK Consortium pointed to “land use planning” addressing the “increased distances between users and locations”. SIKA pointed to “link[ing] land use and transport more clearly [,] by letting access problems come into focus”. ECTRI pointed to “urban planning” and the “vision of a ‘carbon neutral city’”. EARPA pointed to “urban planning”, and to “new, integrated instruments ... to support these planning processes”. Moreover, ECF pointed to “planning for accessibility”, “ensur[ing] everyday facilities and activities can be reached easily and safely through all modes of transport” on the one hand. It also pointed to “planning for the active modes”, including walking and cycling, on the other hand. Finally, EPTO pointed to “integrated planning and management of the total urban system and land use”. This is to include “revisit[ing] existing developments which generate unacceptably large carbon footprints by virtue of their location” on the one hand, and include the “carbon impacts of ... new development proposals ... carefully assessed and action taken to minimise these harmful effects” on the other hand. FIA, in general, pointed to “better planning”.

Regarding the development of competences, ACEA pointed to “eco-driving training”. IRU, similarly, pointed to “training of workers in eco driving techniques”. Moreover, FIA – again, similarly – pointed to “fuel efficient driving ... training”, including in the context of “initial driving training” and

in the context of “advanced driver training”. It also, in general, pointed to “projects addressing eco-driving” – which could include research on training, or training as such.

Of the SPT-based solutions (II.iii.), the reshaping of meanings, the development of competences, as well as land-use policies are most specific – as put forward by T&E, FIA, as well as FIEC, CER and ECF, respectively.

Regarding the reshaping of meanings, T&E pointed to “promoting active lifestyles”, thus fostering “non-motorised transport”. Regarding the development of competences, FIA pointed to “initial ... [and] advanced driver training”, as well as research in relation to “fuel efficient driving”. Regarding land-use policies, FIEC highlighted “business and social activities ... [and] the coherence and cohesion of the entire area and the transport needs”. CER highlighted “more concentrating housing and land-use” and “facilitate[ing] the access of cycling and walking to stations” – to address “urban sprawl”. Finally, ECF highlighted “accessibility”, defined as “ensur[ing] everyday facilities and activities can be reached easily and safely through all modes of transport”.

Thirty-six actors put forward **traditional** environmental economics-based **solutions** (II.i.). Some of these put forward traditional solutions together with other actors – resulting in coalitions.

A coalition of six actors (Mobility for Prosperity in Europe, economic stakeholder; Norway; UNIFE; AEGPL; IRU; SIKA) put forward subsidies to R&D, in combination with restrictions, in combination with vehicle taxes or vehicle subsidies, in combination with infrastructure subsidies with standards or other subsidies, as well as in combination with usage taxes (in general), and transport taxes or fuel taxes or tolls or distance driven tax and time based tax or emissions trading (specifically). One of the coalition actors (SIKA) in addition put forward fuels standards and vehicle standards. Another coalition of two actors (EAA – European Aluminium Association, economic stakeholder; ETRMA – European Tyre and Rubber Manufacturers’ Association, road transport) put forward vehicle standards only. In addition, a coalition of two actors (Centrum für Europäische Politik, economic stakeholder; ASECAP – European Association of Operators of Toll Road Infrastructures, road transport) put forward tolls and distance-based tax, or emissions trading, only.

As for the summary report, four stakeholder categories and one actor – as well as DG TREN (i.e. actors not identified) – put forward traditional environmental economics-based solutions (II.i.). Some of these put forward traditional solutions together with other actors – resulting in coalitions.

A coalition of two stakeholder categories (economic stakeholders and road transport) put forward subsidies to R&D, in combination with fuels standards or vehicles standards. One of the coalition actors (economic stakeholders) in addition put forward vehicle taxes. Another coalition of one stakeholder category and one actor (rail transport; Sweden) put forward infrastructure subsidies with standards only. DG TREN put forward subsidies to R&D, vehicle standards, restrictions, infrastructure subsidies with standards, as well as emissions trading.

Twelve of the traditional solutions put forward by the actors are most specific. This includes subsidies to R&D – as put forward by road transport and DG TREN (summary report). This also includes vehicle standards – as put forward by EAA. In addition, this includes restrictions – as put forward by Norway and AEGPL. Moreover, this includes vehicle taxes and vehicle subsidies – as put forward by AEGPL and IRU, as well as AEGPL, respectively. This also includes infrastructure subsidies with standards and other subsidies – as put forward by IRU, as well as IRU and AEGPL, respectively. Regarding subsidies to R&D, road transport (summary report), in general, pointed to “cleaner and more fuel efficient vehicles”. It, more specifically, pointed to “renewable fuels such as DME [dimethyl ether] and liquid biomethane”. DG TREN (summary report) pointed to “other low carbon technologies [other than electric vehicles] and to the improvement of transition technologies as for example plug in hybrid vehicles”

Regarding vehicle standards, EAA highlighted CO<sub>2</sub> emissions standards, with a focus on “lightweighting as a CO<sub>2</sub> reduction measure”. The standards are in this case to use a “utility parameter ... [of] vehicle footprint” for cars and of “payload” for other vehicles, rather than of “vehicle mass”.

Regarding restrictions, Norway pointed to “incentives for zero emission vehicles”, including “access to the bus lane”. It also pointed to “parking restrictions” in general – which could include exceptions for the “zero emissions vehicles”. AEGPL pointed to “the promotion of low-polluting vehicles” – including “free parking for alternative fuel vehicles, and access restriction to town centres during peak pollution periods for high polluting vehicles”.

Regarding vehicle taxes, AEGPL, for “Autogas”, highlighted “excise duty reflecting advantages of the fuel”. It also highlighted “reduced VAT rate for Autogas vehicles / conversions based on environmental performance”. AEGPL, moreover, highlighted “bas[ing] vehicles registration and circulation tax rates on well-to-wheel environmental performance”, on “well-to-wheel analysis of ... CO<sub>2</sub> emissions”. IRU, in general, highlighted “encourag[ing] the use of and investment into new vehicle concepts and techniques for ... passenger transport”, as well as “incentives for investments in hybrid vehicles or vehicles using alternative fuels”. This could include vehicle taxes. Regarding

vehicle subsidies, AEGPL on the one hand highlighted “subsidies to cover the cost of equipping a vehicle with an autogas system, whether at the moment of purchase or as a retrofit”. It also highlighted “promoting the switch to alternative-fuel vehicles through progressive public procurement policy”. Moreover, AEGPL on the other hand highlighted “scrapping schemes ... encourag[ing] the substitution of older conventional vehicles by alternative-fuel-powered replacements”.

Regarding infrastructure subsidies with standards, IRU pointed to “adequate investment in new infrastructure to remove bottlenecks and missing links”, as well as “filling in the missing links in the road network, including safe parking and city terminals for bus and coach transport”. It also pointed to “investment in infrastructure to guarantee an improved traffic flow of coaches in cities and at tourist sites, including dedicated lanes, parking areas and terminals”.

Regarding other subsidies, IRU pointed to “support for bus, coach and taxi companies”. AEGPL pointed to “tax exemptions to operators actively investing in the development of associated infrastructure, notably to reach a suitable density of Autogas filling stations”. It also pointed to “grant[ing] an equivalent reduction on income tax for citizens switching to Autogas”.

The actors **substantiated** the novel solutions and the traditional solutions to different degrees.

The actors substantiated the novel SPT-based solutions (II.iii.), as well as the traditional environmental economics-based solutions (II.i.).

One actor put forward **novel SPT-based evidence** (IV.iii.). ECTRI addressed meanings.

ECTRI highlighted that “new technologies, especially ICT, are linked to social change, and they become relevant only when they are taken into meaningful common use in social practice, i.e. in everyday life.” It highlighted that “thus more effort is required in identifying the needs and hopes of end users and the society as a whole in policy and ICT development” – also “taking into account the great heterogeneity of the population (elderly people, with most often difficulties with new technologies, young people at the opposite very keen to use them)”. More generally, ECTRI referred to “multidisciplinary research [addressing] (human-machine interactions) “.

One actor put forward **traditional** environmental economics-based **evidence** (IV.i.). SIKA addressed effectiveness, through a study.

SIKA referred to CO<sub>2</sub> emissions, and to a report published by the consultancy Trivector (Trivector 2008). The study was commissioned by SIKA.

The actors – finally – **communicated** the novel solutions and the traditional solutions in different ways. The actors – firstly – set out the problems that the solutions are to address (I.). The actors – secondly – discussed the solutions as such (V.i. reflection and V.ii. critique). They also discussed undesired solutions as such (III.ii.). The actors – thirdly – discussed solutions in relation to actors (III.i. heroes).

The actors set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

Two actors (UITP; CER) pointed to improvements required for the amount of transport. Six actors (Eurelectric; T&E; CER; SIKA; EPTO; ECF) pointed to improvements required for travel need or for transport demand. SIKA, specifically, highlighted “accessibility” or “access to a function” (“for the individual ... access to work, service and leisure activities”). ECF highlighted the “need to travel and journey distances”.

One actor (SIKA) pointed to improvements required for practices/lifestyles. It highlighted “how people organise their everyday lives – both in time and space”. Four actors (UITP; EPTO; LINK Consortium; SIKA) pointed to improvements required for urban planning. They pointed to “localisation problems” (SIKA) in general, as well as to “urban sprawl” and “production outsourcing” (CER) more specifically. The LINK Consortium – also, even more specifically – highlighted the “decrease of [the] bundling effect”.

Seven actors (UNIFE; CER; EARPA; IRU; T&E; UK; EPTO) pointed to alternatives for practices/lifestyles. UNIFE highlighted “a new consideration of the concept of mobility”, and UK highlighted “low carbon ... practice”. T&E highlighted “transport efficient economy”. EARPA and IRU – more specifically, on the one hand – highlighted “fuel efficient driving behaviour” or “eco-

driving techniques". EPTO – more specifically, on the other hand – highlighted "citizen's ... life style choices" "where food and other supplies ... sourced". And, CER highlighted "types of leisure activities".

Two actors (ECTRI; SIKA) pointed to alternatives for urban planning. ECTRI highlighted "'compact city' where the concept of multiple land uses is applied and where a combination of transport, housing and commercial activities is sought". SIKA highlighted "transport-efficient urban structures". It also highlighted "changes in urban and building structures as well as how homes, workplaces and various service functions are planned and located".

Of the novel problems put forward, improvements required for travel need or for transport demand – as put forward by SIKA – is most specific. SIKA highlighted "accessibility" or "access to a function" ("for the individual ... access to work, service and leisure activities"). In addition, improvements required for urban planning – as put forward by the LINK Consortium – is most specific. The LINK Consortium highlighted the "decrease of [the] bundling effect".

Moreover, alternatives for practices/lifestyles – as put forward EPTO – is most specific. EPTO highlighted "citizen's ... life style choices" "where food and other supplies ... sourced". In addition, alternatives for urban planning – as put forward by ECTRI and SIKA – are most specific. ECTRI highlighted "'compact city' where the concept of multiple land uses is applied and where a combination of transport, housing and commercial activities is sought". SIKA highlighted "changes in urban and building structures as well as how homes, workplaces and various service functions are planned and located".

The actors set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

Eighteen actors pointed to improvements required for fuels and for vehicles, as well as to improvements required for modes and for the transport system. In addition, twenty-one actors pointed to alternatives for fuels and for vehicles, as well as to alternatives for transport modes and for the transport system.

As for the summary report, two actors (economic stakeholders; road transport) and one actor (DG TREN) pointed to improvements required for transport modes and for the transport system. In addition, two actors (economic stakeholders; rail transport) pointed to alternatives for vehicles, as well as to alternatives for the transport system.

Of the traditional problems put forward by actors, improvements required for transport modes is most specific – as put forward by SIKA. In addition, alternatives for fuels and for vehicles are most specific – as put forward by AEGPL, as well as CER, SIKA and EARPA, respectively. Moreover, alternatives for the transport system is most specific – as put forward by ERF and FIA.

Regarding improvements required for transport modes, SIKA pointed “traffic performance of different modes”, to “vehicle kilometres”. It also pointed to “transport performance”, to “passenger or tonne kilometres”.

Regarding alternatives for fuels, AEGPL pointed to LPG or Autogas. It pointed to “distinct sources of LPG” – to “processing during gas extraction”, “processing during oil extraction”, and to “naturally occurring product during the refining of crude oil” on the one hand, as well as to “bio-LPG” on the other hand. AEGPL also pointed to Autogas as “feedstock” for hydrogen. Regarding alternatives for vehicles, CER pointed to “green diesel locomotives” on the one hand, as well as to “reduced weight of rolling stock” and to “regenerative braking, energy storage onboard” on the other hand. It also pointed to “longer and higher capacity trains”. In addition, SIKA on the one hand pointed to “optimising power trains [on the one hand] ... and introducing new technical solutions such as fuel cells”, as well as hybrid and electric vehicles. On the other hand, it pointed to “reducing vehicle or craft weight” and “composite material”. Moreover, EARPA pointed to electric vehicles and “electric bicycles (and mopeds/scooters)”. It also pointed to ITS and “eco driving” – to “energy use indicator and gear shift indicator, map enhanced eco driving (E-horizon systems), automatic engine shutdown, fuel efficiency advisor, tyre pressure indicators, cruise control, adaptive cruise control, cooperative cruise control, platooning, dynamic traffic light synchronization”.

Regarding alternatives for the transport system, ERF highlighted ITS and traffic management (“Real-Time Passenger Information, Road User Charging, Fleet Tracking Systems”). In addition, FIA highlighted “public transport” and “inter-modal integration” (including through “park-and-ride, bike-and-ride, car hire and car sharing”).

The actors – moreover – **discussed** the **solutions** and their **substantiation** (V.i. reflection and V.ii. critique).

Regarding evidence, ACEA called for “the full impact of future legislation in the transport sector ... [to] be properly assessed during policy formulation within the Commission”. Similarly, ERF called for “future transport strategies and policies ... to be based on correct facts and figures”.

Regarding traditional evidence (IV.i.), and cost-effectiveness and cost-benefit analysis, as well as models and studies, FIA noted that “a proper assessment of the so-called external costs [by the Commission] is outstanding [and that] ... an internalisation without a cost-benefit analysis is a non-sense”. It also noted that “the study on which the Commission bases its policy proposals is [thus] merely a compilation of research results without proper and critical assessment”. At the same time, EUROCHAMBRES noted that an “absolutely objective quantification of external costs is almost impossible”, and that “the results based on studies or models with slightly different assumptions or base data will always be open to dispute”. EUROCHAMBRES noted that this “leaves leeway for an increase of charges influenced more by financing considerations than exact cost calculations”. It, then, called for “the ‘cheapest cost avoider’ principle ... [to] be applied instead of a pure ‘polluter pays’ principle, to avoid imposing unnecessarily high overall cost to society”.

Also regarding traditional evidence, and informational requirements, Mobility for Prosperity in Europe noted that “appropriate, comparable, reliable and timely statistics on the mobility of passengers and goods at EU level is a prerequisite for good transport policy”. It called for the “collect[ion] of comparable and consistent EU-wide data on purpose, origin and destination, goods’ weight and value by mode, in passenger and freight transport”.

Regarding solutions and evidence, ECF called “for the Commission to employ a European Bicycle Officer/ Bicycle Unit, responsible for the stimulation and coordination of cycling policies from different DGs”.

Regarding solutions, Centrum für Europäische Politik noted that “the principle problem of the Communication is that [it] only [encompasses] very vague tendencies and declarations of intent ... [as] the Commission does not wish to anticipate ... concrete policy actions proposals [, concrete solutions]”. It noted that “it is therefore questionable whether the public consultation [based on the Communication], which is reasonable in principle, can lead to usable results”.

The actors – moreover – **discussed undesired solutions** (III.ii.).

Centrum für Europäische Politik opposed “industrial policy in relation to the fostering of certain technologies in the transport sector” – which could include the traditional solutions vehicle subsidies or infrastructure subsidies. It argued that “as far as these [certain] technologies actually have economic potential in the future it is precisely the private investors who will recognise this” and take the risk. It is “not clear why the taxpayer should take the risk”. There is also “the danger that distortion of competition might be at the expense of non-subsidised technology developments”.

FIA opposed the traditional solutions vehicles taxes and usage taxes, as well as restrictions – as they “lead to a loss of welfare without the expected benefits for mobility and quality of life”.

IRU opposed the traditional solutions vehicles taxes and usage taxes, as “ever-increasing road transport taxes and charges harm the EU’s free movement of people and goods, [and] impair its competitiveness with regard to other regions of the world”. Mobility for Prosperity in Europe also opposed vehicles taxes and usage taxes, as these are based on a “weak methodology of assessing negative externalities while leaving the positive externalities out of scope ... damag[ing] the European welfare on the long term”. As for the summary report, economic stakeholders also opposed the traditional solutions vehicles taxes and usage taxes, as “there is a considerable risk that there will be no added value and that ... [the solutions] will lead to distortions of competition between the different transport modes”. Moreover, EUROCHAMBRES opposed usage taxes. It rather called for “alternative measures ... [that] provide more effective, less costly and less bureaucratic solutions”.

ACEA opposed the traditional solution vehicle standards – as this “will only increase the overall costs, make vehicles more expensive per se and delay new vehicle purchase”, as well as “lead to unnecessary, harmful, market fragmentation”. CER also opposed standards, as this, more generally, “relies too much on technology as the solution”.

ACEA also opposed the traditional solution restrictions (“access”), as this will “cause grave difficulties for motorists in their daily mobility”. EPTO also opposed restrictions (“accelerated replacement vehicles”) and opposed the traditional solution infrastructure subsidies with standards (“new fuel supply distribution infrastructure”) – as these are “unaffordable”.

The actors – finally – **discussed solutions in relation to actors.**

Firstly, several actors assigned traditional solutions (II.i.) to different heroes (III.i.).

The Link Consortium assigned vehicle taxes to MSs with the EU. It also assigned infrastructure subsidies with standards to the EU.

EUROCHAMBRES assigned fuel taxes to MSs, as well as subsidies to R&D to the EU. It also assigned vehicle standards to international actors.

Moreover, Eurelectric assigned vehicle taxes and usage taxes, as well as infrastructure subsidies with standards, to MSs with the EU. For all of these, it called for a strengthened role of the EU (“framework for the basis of taxation and pricing in transport”; “framework or best practice guidelines” for infrastructure subsidies with standards).

Norway assigned restrictions, infrastructure subsidies with standards, and tolls, to “national and local authorities” with the EU. For all of these, it called for a strengthened role of the EU (“common recommendations on strategies”). Norway also assigned subsidies to R&D to the EU.

In addition, several actors assigned traditional solutions (II.i.) and novel solutions (II.ii. and II.iii.) to different heroes (III.i.).

FIEC assigned land-use policies (novel solution – II.iii.) to “Member States and local authorities”, as well as infrastructure subsidies with standards (traditional solution) to the EU.

FIA assigned land-use policies (novel solution – II.iii.) to MSs, as well as infrastructure subsidies with standards (traditional solution) to MSs with the EU. It also assigned subsidies to R&D (traditional solution) to the EU.

ACEA assigned subsidies to R&D, and infrastructure subsidies with standards (traditional solutions), to MSs with the EU. It also assigned development of competences (novel solution – II.iii.) to the EU.

Furthermore, SIKA assigned tolls (traditional solution) to MSs. It also assigned land-use policies (novel solution – II.iii.) to the “municipality or city” with to the EU. For land-use policies, it called

for a strengthened role of the EU (“spread good examples”). In addition, it assigned subsidies to R&D, fuel and vehicle standard, infrastructure subsidies with standards, as well as fuel taxes and distance driven tax (traditional solutions), to the EU.

AEGPL assigned restrictions and tolls (traditional solutions), to municipal authorities and cities. It also assigned vehicle subsidies and other subsidies (traditional solutions), to local authorities and MSs with the EU. It – for restrictions and tolls, as well as for vehicle subsidies – called for a strengthened role of the EU (“guidance”; “legal framework”). In addition, AEGPL assigned subsidies to R&D (traditional solution) and the fostering of interactions (novel solution – II.ii.), to the EU.

EARPA assigned land-use policies (novel solution – II.iii.) to the “regional and city level” with the EU. For these, it called for a strengthened role of the EU (“evaluate and promote”). It also assigned subsidies to R&D, as well as vehicle standards and vehicle taxes (traditional solutions), to the EU.

**Combinations** of narrative elements – then – emerge for the other policy work instance – for the other instance that relates to the second stakeholder consultation.

Regarding **novel combinations**, three actors (Eurelectric; EHA; AEGPL) – in a coalition – put forward a combination with a grounding of two **innovation studies-based solutions** (II.ii.). The coalition did not substantiate these. Moreover – in terms of communication – the coalition set out a novel problem and traditional problems that the solutions are to address. In addition, the coalition discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

Another coalition – a coalition of six actors (Hungary; UITP; EIM; UNIFE; ECTRI; ERF) – put forward a combination with a grounding of an innovation studies-based solution (II.ii.). The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solution is to address. In addition, the coalition discussed evidence.

In addition, EARPA put forward a combination with a grounding of an innovation studies-based solution (II.ii.). EARPA did not substantiate this. Moreover – in terms of communication – EARPA set out a novel problem and traditional problems that the solution is to address. In addition, EARPA discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

As for the summary report, economic stakeholders put forward a combination with a grounding of an innovation studies-based solution (II.ii.). The economic stakeholders did not substantiate this.

Moreover – in terms of communication – the economic stakeholders only set out traditional problems that the solution is to address. In addition, the economic stakeholders discussed undesired traditional solutions.

Moreover, four actors (T&E; Sweden; UK; UNIFE) – in a coalition – put forward a combination with a grounding of a **SPT-based solution** (II.iii.). The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solution is to address.

Another coalition – a coalition of twelve actors (EUROCHAMBRES; FIEC; EHA; Denmark; Norway; UITP; CER; LINK Consortium; SIKA; ECTRI; EARPA; ECF) – put forward a combination with a grounding of a SPT-based solution (II.iii.). The coalition substantiated this. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solution is to address. In addition, the coalition discussed solutions, as well as (traditional) evidence. It also discussed undesired traditional solutions. Finally, the coalition discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

Another coalition – a coalition of two actors (ACEA; IRU) – put forward a combination with a grounding of a SPT-based solution (II.iii.). The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out a novel problem and traditional problems that the solution is to address. In addition, the coalition discussed evidence. It also discussed undesired traditional solutions. Moreover, the coalition discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

In addition, EPTO put forward a combination with a grounding of two SPT-based solutions (II.iii.). EPTO did not substantiate these. Moreover – in terms of communication – EPTO set out novel problems and traditional problems that the solutions are to address. In addition, it discussed undesired traditional solutions.

FIA put forward a combination with a grounding of two SPT-based solutions (II.iii.). FIA did not substantiate these. Moreover – in terms of communication – FIA did not set out problems that the solutions are to address. In addition, FIA discussed traditional evidence. It also discussed undesired traditional solutions. Finally, FIA discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

As for the summary report, cities and regions merely put forward a SPT-based solution (II.iii.).

To sum up, the novel combinations put forward by the actors encompassed one type of novel solution (coalitions and actors), as well as both types of novel solutions (II.ii. and II.iii.). For the

latter, three actors – in two coalitions each – put forward two separate novel combinations, each encompassing one type of novel solution (II.ii. and II.iii.) (UITP; UNIFE; rail transport – summary report; EARPA). The respective solutions were overall not substantiated – with the exception of one coalition showing SPT-based evidence (IV.iii.). Moreover – in terms of communication – the actors overall set out novel problems and traditional problems that the solutions are to address – with the exception of two actors setting out only traditional problems (one actor – summary report) and no problems respectively (one actor – consultation responses).

In addition, one coalition did not discuss (consultation responses). Other coalitions and actors – on the one – hand discussed only evidence (one coalition), discussed only undesired traditional solutions (two actors – consultation responses and summary report respectively), as well as only discussed novel solutions and traditional solutions in relation to actors (III.i. heroes) (one actor and one coalition). On the other hand, two coalitions and one actor discussed solutions and/or (traditional) evidence, undesired traditional solutions, as well as novel solutions and traditional solutions in relation to actors (III.i. heroes).

Regarding **traditional combinations**, six actors (Mobility for Prosperity in Europe; Norway; UNIFE; AEGPL; IRU; SIKA) – in a coalition – put forward a combination with a grounding of five traditional solutions (II.i.). SIKA – in addition – put forward another such solution. The coalition substantiated these. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solutions are to address. In addition, the coalition discussed traditional evidence. It also discussed undesired traditional solutions. Finally, the coalition discussed novel solutions and traditional solutions in relation to actors (III.i. heroes).

Another coalition – a coalition of two actors (EAA; ETRMA) – put forward a combination with a grounding of a traditional solution. The coalition did not substantiate this. Moreover – in terms of communication – the coalition only set out a traditional problem that the solution is to address.

Another coalition – a coalition of two actors (Centrum für Europäische Politik; ASECAP) – put forward a combination with a grounding of a traditional solution. It did not substantiate this. Moreover – in terms of communication – it discussed solutions. In addition, it discussed undesired traditional solutions.

As for the summary report, two actors (economic stakeholders; road transport) – in a coalition – put forward a combination with a grounding of two traditional solutions. Economic stakeholders – in addition – put forward another such solution. The coalition did not substantiate these. Moreover

– in terms of communication – the coalition only set out a traditional problem that the solutions are to address. In addition, the coalition discussed undesired traditional solutions.

Another coalition – a coalition of two actors (rail transport; Sweden) put forward a combination with a grounding of a traditional solution. The coalition did not substantiate this. Moreover – in terms of communication – the coalition only set out traditional problems that the solution is to address.

In addition, DG TREN (i.e. actors not identified) put forward a combination with a grounding of five traditional solutions. DG TREN did not substantiate these. Moreover – in terms of communication – DG TREN only set out a traditional problem that the solutions are to address.

To sum up, the traditional combinations put forward by actors encompassed a grounding of a traditional solution (three coalitions – consultation responses and summary report respectively), a grounding of five traditional solutions (one coalition – consultation responses) and a grounding of two solutions (one coalition – summary report), as well as a grounding of traditional solutions (DG TREN, single actor – summary report). The coalitions and actor overall did not substantiate these – with the exception of the coalition putting forward a combination with grounding of five traditional solutions.

Moreover – in terms of communication – the coalitions and the actor overall only set out traditional problems – with again the exception of the coalition putting forward a combination with grounding of five traditional solutions (also novel problems). In addition, the coalitions and the actors did not discuss overall – with the exception of the coalitions putting forward combinations with grounding of five and of two traditional solutions, as well as with a grounding of one traditional solution (consultation responses and summary report). These discussed solutions in general (one coalition) and traditional evidence (one coalition), undesired traditional solutions (three coalitions), as well as novel solutions and traditional solutions in relation to actors (III.i. heroes) (one coalition).

Norway, UNIFE, SIKA, AEGPL, IRU (consultation responses), as well as economic stakeholders (summary report) – notably – each put forward a novel combination<sup>75</sup>, as well as put forward a traditional combination. In this case, all actors did so in a coalition for both (for UNIFE, both novel combinations) – except for economic stakeholders (for the latter only).

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Encompassing one type of novel solution – II.iii., except II.ii. for AEGPL. For UNIFE, encompassing both types of novel solution in two novel combinations – II.ii. and II.iii.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a novel **most specific combination** and a traditional most specific combination emerge.

A **novel** most specific combination, **from** targeted subsidies to R&D, the fostering of interactions between actors, and training in relation to R&D, as well as the reshaping of meanings, the development of competences, and land-use policies; **to** improvements required for travel need or for transport demand and improvements for urban planning, as well as alternatives for practices/lifestyles and alternatives for urban planning.

In addition, a **traditional** most specific combination, **from** subsidies to R&D, vehicle standards, restrictions, vehicle taxes and vehicle subsidies, as well as infrastructure subsidies with standards and other subsidies; **to** improvements required for modes, as well as alternatives for fuels and for vehicles, and alternatives for the transport system.

### II.iii. Working group

In this section, I address the other policy work instance in the third of five clusters of steps. This other instance relates to the Commission working group.

I here draw on the results of the analysis for minutes of the working group meetings (DG TREN 2009 - 4; DG TREN 2010; DG MOVE 2010 - 1).

The minutes of the working group meetings identified the different actors or DGs. I hence address the different actors for these.

On the one hand, most actors put forward only traditional environmental economics-based solutions (II.i.). On the other hand, one actor put forward only an innovation studies-based solution (II.ii.).

DG Employment, Social Affairs and Inclusion (DG EMPL) put forward a **novel** innovation studies-based **solution** (II.ii.). This solution was training in relation to R&D. DG EMPL pointed to “training” in relation to “the job creation potential of transport decarbonisation”.

Four actors put forward **traditional** environmental economics-based **solutions** (II.i.). All of these actors put forward traditional solutions by themselves.

The Secretariat-General (SG) put forward vehicle taxes. DG Climate Action (DG CLIMA) put forward distance driven tax. Moreover, DG MOVE other Units put forward subsidies to R&D, vehicle standards, as well as fuel taxes and emissions trading. Finally, DG Regional Policy (DG REGIO) put forward infrastructure subsidies with standards.

Two of the traditional solutions put forward by the actors are most specific. This includes distance driven tax put forward by DG CLIMA. This also includes infrastructure subsidies with standards put forward by DG REGIO.

Regarding distance driven tax, DG CLIMA pointed to “each user ... [being] charged per kilometre used after taking into account all relevant parameters, such as, type of road, type of vehicle, type of fuel used etc.”. Regarding infrastructure subsidies with standards, DG REGIO pointed to the “climate-proofing of infrastructure”.

The actors – finally – **communicated** the novel solutions and traditional solutions in different ways. The actors set out the problems that the solutions are to address (I.).

DG MOVE other Units set out a **novel problem** that the solutions are to address – novel mobility demand too high problems (I.ii.). It pointed to improvements for transport demand.

DG set out a **traditional problem** that the solutions are to address – traditional mobility too inefficient problems (I.i.). It pointed to alternatives for transport modes, highlighting public transport.

**Combinations** of narrative elements – then – emerge for the other policy work instance – for the other instance that relates to the Commission working group.

Regarding **novel combinations**, DG EMPL merely put forward a novel innovation studies-based solution (II.ii.).

Regarding **traditional combinations**, SG put forward a combination with a grounding of a single traditional solution (II.i.). It did not substantiate this. Moreover – in terms of communication – SG set out a traditional problem that the solution is to address.

DG CLIMA and DG REGIO merely put forward a single traditional solution.

DG MOVE other Units merely put forward traditional solutions.

To sum up, the traditional combination put forward by the actor encompassed a grounding of a single traditional solution. The solution was not substantiated. Moreover – in terms of communication – the actor set out a traditional problem that the solutions is to address.

#### II.iv. IA review by IAB

In this section, I address the other policy work instance in the fourth of five clusters of steps. This other instance relates to the IA review by the “Impact Assessment Board” (IAB).

I here primarily draw on the results of the analysis for the IAB opinions, issued following the IAB meetings (IAB 2011 - 1; IAB 2011 - 2). I – also – draw on the results of the analysis for the IAB meetings documents, for the IA drafts (DG MOVE 2010 - 2; DG MOVE 2010 - 3; DG MOVE 2011 - 1; DG MOVE 2011 - 2).

It is important to note as regards the IA drafts, that I only consider the amendments to the IA drafts – amendments relative to the relevant previous versions of the IA draft, relative to the last IASG meetings-version of the document. In other words, I only consider the amendments to the IA drafts put forward.

The IAB opinions were jointly authored by the IAB members. I hence here only address one actor for this, the IAB. The IA drafts were authored by DG MOVE. I hence here only address one actor for this, DG MOVE.

The IAB did not put forward **solutions**.

As for the IA drafts, DG MOVE put forward mostly traditional environmental economics-based solutions (II.i.), as well as some novel innovation studies-based solutions (II.ii.) and some novel SPT-based solutions (II.iii.).

DG MOVE in general pointed to **novel** innovation studies-based **solutions** (II.ii.). – which could include the fostering of interactions between actors or training in relation to R&D. DG MOVE highlighted “innovation policies putting in place the necessary framework conditions”.

DG MOVE put forward a SPT-based solution (II.iii.). This solution was land-use policies. DG MOVE pointed to “integrated land planning” – to “planning policies ... tak[ing] into account the interaction of transport with other policy areas, such as housing”. It also pointed to “urban mobility plans”. DG

MOVE, in addition, in general pointed to novel SPT-based solutions (II.iii.) – which could include the reshaping of meanings or the development of competences. It highlighted “eco-driving”.

The **traditional** environmental economics-based **solutions** (II.i.) put forward by DG MOVE included subsidies to R&D. These also include vehicle standards. The traditional solutions, moreover, included vehicle taxes, as well as infrastructure subsidies with standards and other subsidies. They finally included fuel taxes, tolls and carbon tax, as well as emissions trading.

Three of the traditional solutions put forward by DG MOVE are most specific – vehicle taxes, infrastructure subsidies with standards, as well as fuel taxes.

For vehicle taxes, DG MOVE pointed to “introducing a CO<sub>2</sub>-related element in the annual circulation tax and the registration tax”. More specifically, it pointed to the “elimination of [the] favourable taxation regime for company cars”.

For infrastructure subsidies with standards, DG MOVE on the one hand highlighted “supporting infrastructure (charging points , refuelling stations)”, as well as ITS. It on the other hand highlighted “public transport and non-motorised modes”, as well as “non-road infrastructure” and “soft modes infrastructure”. DG MOVE, in addition, highlighted “high performing infrastructure in terms of environmental impact”.

For fuel taxes, DG MOVE, in general, pointed to “establish[ing] a link between vehicle fuel taxation and the environmental performance”, with ultimately the “full internalisation of the cost of GHG emissions”. It also pointed, more specifically, to “establishing an energy and CO<sub>2</sub> component in excise duties”. DG MOVE, even more specifically, pointed to the gradual elimination of the “exemption of compressed natural gas (CNG), liquefied petroleum gas (LPG) and biofuels from the energy component”, as well as the elimination of the “exemption for diesel”. For the latter, this is also to apply to diesel “use[d] in rail, local public passenger transport”. And, “the CO<sub>2</sub> tax component is [ultimately to be] derived endogenously to achieve the 60% CO<sub>2</sub> emissions reduction by 2050 compared to 1990”.

As for the IA drafts, DG MOVE **substantiated** the novel solutions and traditional solutions to different degrees. DG MOVE substantiated the novel innovation studies-based solutions (II.ii.) and

the novel SPT-based solutions (II.iii.), as well as substantiated the traditional environmental economics-based solutions (II.i.).

The **novel** innovation studies-based **evidence** (IV.ii.) put forward by DG MOVE highlighted structure and functions.

Regarding structure, DG MOVE pointed to “the EU, Member States, public and private actors”. Regarding functions, DG MOVE highlighted “fragmentation of efforts ... related to insufficient data and information and lack of co-ordinated setting of strategic priorities”. As regards the latter, DG MOVE, more specifically, highlighted the need to “focus ... on the most promising technologies”.

The novel SPT-based evidence (IV.iii.) put forward by DG MOVE highlighted materials.

DG MOVE stressed the “consequences on the operation of the transport system” of “location decisions ... [by] public authorities”.

The **traditional** environmental economics-based **evidence** (IV.i.) put forward by DG MOVE addressed externalities, as well as effectiveness and cost-effectiveness. It addressed the latter two through models. The traditional evidence also addressed informational requirements and undesired effects. It addressed the latter through studies.

Of the traditional evidence put forward by DG MOVE, effectiveness and cost-effectiveness, as well as models, are most specific. Moreover, informational requirements are most specific.

Regarding effectiveness, DG MOVE referred to CO<sub>2</sub> emissions, as well as “energy use” and “renewable energy use”. It also referred to “transport activity”.

Regarding cost-effectiveness, DG MOVE referred to various “economic impacts”. This includes “external costs for transport and the welfare losses due to limitation in mobility” on the one hand, as well as “savings in fuel costs” and “congestion costs” on the other hand. This, moreover, includes “capital costs related to transport equipment, infrastructure costs for the charging and refuelling of electric propulsion vehicles, fixed operation costs, variable operation costs (including fuel costs), users’ disutility [on the one hand], and external costs of congestion, air pollution, noise and

accidents [on the other hand]”. Costs were considered for “transport as a business” and for “users”, as well as for “transport-related sectors”.

Effectiveness and cost-effectiveness were addressed through various models, through a “modelling framework”.

This framework – in general – included the “GEM-E3 (World and Europe) model ... an applied general equilibrium model”. It “aims at covering the interactions between the economy, the energy system and the environment”. It also included the “PRIMES model” that “simulates the response of energy consumers and the energy supply systems to different pathways of economic development and exogenous constraints”. “It ... simulates a market equilibrium solution in the European Union and its member states”. The modelling framework – more specifically – included the “PRIMES-TREMOVE transport model” that “projects the evolution of demand for passengers and freight transport by transport mode and transport mean, based on economic, utility and technology choices of transportation consumers, and projects the derived fuel consumption and emissions of pollutants”. The framework – in addition – included the “TRANSTOOLS model” that is “a European Transport Network model covering all modes of transport for passenger and freight”. “The model is used to assess the level of congestion and of accessibility and the impact of (the pricing of) transport infrastructure.” The modelling framework also included the “TREMOVE model” that is “a policy assessment model for the emissions and environmental impact of transport”. It “is used to estimate the effects of various policy measures on transport demand, the resulting modal shifts, the vehicle stock renewal, the emissions of air pollutants and the effects on welfare.”

Regarding informational requirements, DG MOVE pointed to the “associated technology risk” linked to the “large scale deployment of electric propulsion in transport”. DG MOVE, moreover, noted that “the robustness of modelling results [the results from the modelling framework] is affected by the assumptions”. It referred to the “sensitivity analysis [that] has been carried out on ... assumptions concerning GDP growth and oil prices”.

As for the IA drafts, DG MOVE – finally – **communicated** the novel solutions and traditional solutions in different ways. DG MOVE – firstly – set out the problems that the solutions are to address (I.). DG MOVE – secondly – also discussed the solutions as such (V.i. reflection).

DG MOVE set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

DG MOVE pointed to improvements required for amount of transport. It pointed to “vehicle numbers”, as well as to “traffic volumes”.

DG MOVE set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

DG MOVE pointed to improvements required for transport modes and for the transport system. It also pointed to alternatives for transport modes and for the transport system.

Of the traditional problems put forward by DG MOVE, improvements required for the transport system, as well as alternatives for transport modes, are most specific.

For improvements required for the transport system DG MOVE pointed to “efficiency in use of natural resources”. It also pointed to the “EU transport system ... not sufficiently keep[ing] pace with the mobility needs”, the “capacity of transport networks is not able to meet the demand that is, or will be, regularly placed on them”. This leads to “congestion in urban areas”, to “congestion ... in agglomerations and in their access routes”, to “congestion in urban areas and regions, at the entrance of the main cities”.

For alternatives for transport modes, DG MOVE pointed to “a more extensive use of non-motorised and of public transport”.

DG MOVE – moreover – **discussed** the **substantiation** of solutions (V.i. reflection).

Regarding evidence, DG MOVE explained that “given the nature of the White Paper as a strategic document ... it is outside the scope of the ... Impact Assessment [IA] ... to evaluate each single initiative in detail”. This will rather be done “at a later stage, following a more specific analysis and an individual Impact Assessment [IA]”.

Regarding traditional evidence (IV.i.), DG MOVE – on the one hand – explained that “modelling is meant to provide a stylised quantitative assessment of the effectiveness and efficiency of possible initiatives ... giving evidence on their relative importance, on the way they interact and on the required intensity of the intervention”. In this case, the “specification” of the initiatives that is made, “does not necessarily correspond to what would actually be proposed at a later stage”. On the other hand, DG MOVE explained that the “modelling results are global and tentative, and present the impacts as illustrations rather than as conclusive evidence to support the preferred option”. DG MOVE then explained that – considering this absence of “precise specifications on concrete proposals”, as well as “the high uncertainty surrounding the long time horizon and the inherent modelling limitations” – “requires treating the modelling results with caution”.

Regarding traditional evidence, DG MOVE, moreover, explained that for effectiveness only the “tank-to-wheel emissions” were considered – “assum[ing] that biofuels are carbon neutral”.

**Combinations** of narrative elements – then – emerge for the other policy work instance – for the other instance that relates to the IA review by the IAB.

The IAB did not put forward solutions.

Regarding **novel combinations**, DG MOVE – as for the IA drafts – put forward a combination with a grounding of both novel innovation studies-based solutions (II.ii.) and novel SPT-based solutions (II.iii.). It substantiated both of these. Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address. In addition, DG MOVE discussed evidence and traditional evidence.

To sum up, the novel combination put forward by DG MOVE encompassed both types of novel solutions (II.ii. and II.iii.). It substantiated these. Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address. In addition, it discussed evidence and traditional evidence.

Regarding **traditional combinations**, DG MOVE – as for the IA drafts – put forward a combination with a grounding of traditional solutions (II.i.). It substantiated these. Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address. In addition, DG MOVE discussed evidence and traditional evidence.

To sum up, the traditional combination put forward by DG MOVE encompassed a grounding of traditional solutions. It substantiated these. Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address. In addition, it discussed evidence and traditional evidence.

DG MOVE (IA drafts) – notably – put forward a novel combination<sup>76</sup>, as well as put forward a traditional combination.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – only a traditional **most specific combination** emerges. A **traditional** most specific combination, **from** vehicle taxes, infrastructure subsidies with standards, as well as fuel taxes; **to** effectiveness and cost-effectiveness, as well as models; **to** improvements required for the transport system, as well as alternatives for transport modes.

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Encompassing both types of novel solution – II.ii. and II.iii.

## II.v. ISC

In this section, I address the other policy work instance in the last of five clusters of steps. This other instance relates to the ISC.

I here primarily draw on the results of the analysis for the responses to the ISC (BEPA 2011; DG CLIMA 2011; DG COMP 2011; DGT 2011; DG ECFIN 2011; EEAS 2011; DG ELARG 2011; DG EMPL 2011; DG ENER 2011; DG ENV 2011; DG ENTR 2011; EUROSTAT 2011; DG INFSO 2011; JRC 2011; DG JUST 2011; DG MARE 2011; DG MARKT 2011; DG REGIO 2011; DG RTD 2011; DG SANCO 2011; SG 2011; DG TAXUD 2011; DG TRADE 2011). Responses to the ISC here included the responses as such, as well as the consultation documents with changes tracked. I – moreover – draw on the results of the analysis for the consultation documents or ISC “dossier”. The consultation documents include an IA draft together with a draft of the associated Commission Working Document (DG MOVE 2011 - 3 to DG MOVE 2011 - 5). The consultation documents also include a draft of the resulting White Paper (DG MOVE 2011 - 6).

It is important to note as regards the IA draft, that I only consider the amendments to the IA draft – amendments relative to the previous version of the IA draft, relative to the last IAB meeting-version of the document. In other words, I only consider the amendments to the IA draft put forward.

The ISC responses were put forward by the different actors or DGs. I hence address the different actors for these. The consultation documents – the IA draft and the associated Working Document draft, as well as the White Paper draft – were authored by DG MOVE. I hence here only address one actor for these, DG MOVE.

On the one hand, various actors put forward more to mostly to only traditional environmental economics-based solutions (II.i.). On the other hand, some actors put forward traditional environmental economics-based solutions (II.i.) and novel SPT-based solutions (II.iii.). Another actor put forward traditional environmental economics-based solutions (II.i.) and novel innovation studies-based solutions (II.ii.).

As for the IA draft and the associated Working Document draft, DG MOVE put forward only traditional environmental economics-based solutions (II.i.), as well as all solutions but mostly traditional solutions, respectively.

As for the White Paper draft, DG MOVE put forward all solutions, but mostly traditional solutions (II.i.).

Two actors (DG Information Society and Media – DG INFSO; DG Enterprise and Industry – DG ENTR) put forward novel innovation studies-based solutions (II.ii.). This solution was the fostering of interactions between actors. The two actors put forward the solution together – resulting in a coalition.

DG INFSO pointed to developing “a technology roadmap”. This is to focus on “clean ... vehicles including fully electric vehicles”, as well as on “potential new or unconventional transport systems and vehicles such as ... platooning and highly automated vehicles”. DG ENTR pointed to the “coordination and integration of multiple actors”, for “support[ing] the development and deployment of the key technologies”.

As for the IA draft and the associated Working Document draft, in the latter DG MOVE in addition put forward another novel innovation studies-based solution (II.ii.). This solution was targeted subsidies to R&D. DG MOVE pointed to “key technologies” in general. It also, more specifically, pointed to “electric networked vehicles, fuel cells, Bus Rapid Transit (BRT), Personal Rapid Transit (PRT)”.

As for the White Paper draft, DG MOVE also in addition put forward another novel innovation studies-based solution (II.ii.). This solution was again targeted subsidies to R&D. DG MOVE pointed to “the most promising technologies” and to “key technologies” in general. It also, more specifically, pointed to “the deployment of smart mobility systems developed through EU-funded research” – of “intelligent transport services (ITS), and interoperable interconnected solutions for the next generation of multimodal traffic management and information systems (including for charging)”.

Of the innovation studies-based solutions (II.ii.), the targeted subsidies to R&D and the fostering of interactions between actors are most specific – as put forward by DG MOVE (Working Document draft and White Paper draft), and by DG MOVE (Working Document draft), respectively.

Regarding targeted subsidies to R&D, DG MOVE (Working Document draft), in general, pointed to “the development and deployment of the key technologies”. It, more specifically, pointed to

“electric networked vehicles, fuel cells” on the one hand, and to “Bus Rapid Transit (BRT), Personal Rapid Transit (PRT)” on the other hand. DG MOVE (White Paper draft) also, in general, pointed to the “key technologies” and to “the most promising technologies” in general. It, more specifically, also pointed to the “smart mobility systems developed through EU-funded research”.

Regarding the fostering of interactions between actors, DG MOVE (Working Document draft) highlighted the “coordination of actors”, and the “fostering partnerships ... and of building consensus on future deployment pathways”. It pointed to the establishment of a “technology roadmap”, of a “Strategic Transport Technology Plan (STTP)”, as well as of “an innovation and deployment strategy”. These are to focus on “clean ... vehicles”, “new or unconventional transport systems and vehicle”, “sustainable alternative fuels” (“a comprehensive alternative fuel strategy”) on the one hand, as well as “innovations for sustainable urban mobility” on the other hand. These are also to focus on “smart mobility partnerships and demonstration projects for sustainable urban transport solutions”.

Four actors (DG Climate Action – DG CLIMA; DG Environment – DG ENV; DG Regional Policy – DG REGIO; DG Health and Consumers – DG SANCO) put forward a novel SPT-based solutions (II.iii.), land-use policies – resulting in a coalition. One coalition actor also put forward another such solution, the reshaping of meanings (DG SANCO).

Regarding land-use policies, DG CLIMA and DG SANCO did not elaborate on this. DG REGIO pointed to “promot[ing] development with the least increase in mobility demand (land-use planning, brownfield development, location policy and construction permits, spatial organisation of public and private services)”. Similarly, DG SANCO pointed to “‘smart planning’ on the basis of integrating infrastructure and demand management planning”. Regarding reshaping meanings, DG SANCO pointed to “improving the image of public transport (social status)”.

As for the IA draft and the associated Working Document draft, in the latter DG MOVE in addition put forward another novel SPT-based solutions (II.iii.). This solution was the development of competences. DG MOVE pointed to the development of “skills on new technologies (IT, green energies), on sustainable ways of transport” in general. It also, more specifically, pointed to “include[ing] eco-driving requirements in the future revisions of the driving licence directive”.

As for the White Paper draft, DG MOVE rather put forward two novel SPT-based solutions (II.iii.). These solutions were land-use policies and the development of competences. Regarding the

development of competences, DG MOVE again pointed to “includ[ing] eco-driving requirements in the future revisions of the driving licence directive”.

Of the SPT-based solutions (II.iii.), land-use policies and the development of competences are most specific – as put forward by DG REGIO and DG MOVE respectively. Regarding land-use policies, DG REGIO pointed to limiting “mobility demand” through “brownfield development, location policy and construction permits, spatial organisation of public and private services”. Regarding the development of competences, DG MOVE pointed to “skills on ... sustainable ways of transport”, as well as to “include[ing] eco-driving requirements in the future revisions of the driving licence directive”.

Nine actors put forward **traditional** environmental economics-based **solutions** (II.i.). Some of these put forward traditional solutions together with other actors – resulting in coalitions.

A coalition put forward vehicle subsidies, in combination with infrastructure subsidies with standards or other subsidies, as well as in combination with fuel taxes or tolls (DG ENV; DG REGIO). As for the IA draft and the associated Working Document draft, DG MOVE rather put forward subsidies to R&D, fuel standards and vehicles standards, restrictions, vehicle taxes and vehicle subsidies, as well as infrastructure subsidies with standards. DG MOVE also put forward usage taxes – including fuel taxes, tolls, distance driven tax and time based tax, as well as carbon tax and emissions trading.

As for the White Paper draft, DG MOVE rather put forward subsidies to R&D, fuel standards and vehicles standards, restrictions, vehicle taxes and vehicle subsidies, as well as infrastructure subsidies with standards and other subsidies. DG MOVE also put forward usage taxes – including fuel taxes, tolls, distance driven tax and time based tax, as well as carbon tax and emissions trading.

Eight of the traditional solutions put forward by the actors are most specific. This includes subsidies to R&D and vehicle standards – as put forward by DG MOVE (White Paper draft), and DG MOVE (Working Document draft), respectively. This also includes vehicle taxes and vehicle subsidies – as put forward by DG MOVE (Working Document draft and White Paper draft), as well as by DG ENV and DG MOVE (Working Document draft), respectively. And, this includes infrastructure subsidies with standards – as put forward by DG ENV and DG MOVE (Working Document draft).

Regarding subsidies to R&D, DG MOVE (White Paper draft) pointed to “large demonstration projects” in general. It also pointed, more specifically, to “demonstration projects for electro

mobility (and other alternative fuels) including recharging and refuelling infrastructure and intelligent transport system [ITS]", as well as "for sustainable urban transport solutions (including demonstrators for road pricing schemes etc)". Moreover, DG MOVE pointed to "infrastructure ... and tolling systems".

Regarding vehicle standards, DG MOVE (Working Document draft) pointed on the one hand to "fuel efficiency standards" in general, as well as to "CO<sub>2</sub> emission standards for new passenger cars" and "for other vehicle categories and modes" more specifically. It on the other hand pointed to "energy efficiency standards". Moreover, DG MOVE pointed to "standardise[d] interfaces of an electronic in-vehicle platform ... enabl[ing] the parallel operation of different applications (... tolling ... etc. ...)". It also pointed to "a reduction in the maximum designed speed" for passenger cars.

Regarding vehicle taxes, DG MOVE (Working Document draft and White Paper draft) pointed to "remov[ing] tax distortions" in general. It pointed, more specifically, to the "revision of company car taxation to eliminate distortions and favour the deployment of clean vehicles". Regarding vehicle subsidies, DG ENV pointed to "public procurement ... to ensure rapid up take of new clean and resource-efficient technologies". It also pointed to "retrofitting programmes" for "innovative vehicle emissions abatement strategies targeting in particular those vehicles which have a longer turnover rate". Moreover, DG ENV pointed to "clean vehicle schemes". DG MOVE (Working Document draft) pointed to "green public procurement", with a focus on "electromobility, ... [to] hybrid vehicles or pure battery based cars". It also pointed to "ITS applications in support of eco-driving" and to "electric networked vehicles, fuel cells" on the one hand. Moreover, it pointed to "Bus Rapid Transit (BRT), Personal Rapid Transit (PRT)" on the other hand.

Finally, regarding infrastructure subsidies with standards, DG ENV highlighted that "for new infrastructure, there is a .. need to ... apply ... integrated assessments form the outset minimise or eliminate ... impacts [including "GHGs emissions"]". And, "existing infrastructure may need to be retrofitted to reduce [these] negative impacts". DG MOVE (Working Document draft) on the one hand pointed to "cleaner fuels" or "alternative fuels", as well as to "charging and refuelling infrastructure". It also pointed to "smart mobility systems", to "ITS, and to the next generation of multimodal traffic management and information systems". Moreover, DG MOVE referred to the "greening of infrastructure", with "construction material, which can enhance ... CO<sub>2</sub> performance". In addition, DG MOVE on the other hand pointed to "sustainable modes". It pointed to "rail, light rail, underground and trams", to "walking, cycling and public transport", as well as to "multimodal stations". DG MOVE also referred to the "safety of cyclist and pedestrians".

The actors **substantiated** the novel solutions and the traditional solutions to different degrees.

As for the IA draft and the associated Working Document draft, DG MOVE substantiated the novel innovation studies-based solutions (II.ii.), as well as well as the traditional environmental economics-based solutions (II.i.). As for the White Paper, DG MOVE substantiated the traditional environmental economics-based solutions (II.i.).

DG MOVE (IA draft and the associated Working Document draft) put forward **novel** innovation studies-based **evidence** (IV.ii.), addressing structure and functions.

Regarding structure, DG MOVE (IA draft) pointed to “coordination failures” – to the “lack of sufficient coordination of efforts between the EU, Member States, public and private actors”. DG MOVE (Working Document draft) also pointed to “to the high number of stakeholders involved”. This includes “technology providers, energy and infrastructure providers and cities themselves – as well as ... financial bodies” for “urban transport technologies”. This – for alternative fuels – also includes “the automotive industry (vehicle manufacturers and suppliers), fuel and energy suppliers, grid managers, component manufacturers, infrastructure managers, network operators, scientific and standardisation bodies, EU, national and regional authorities, municipalities and consumers”. Regarding functions, DG MOVE (IA draft) highlighted “insufficient data and information [exchange] and lack of common setting of strategic priorities”. It also highlighted the “the required efforts” – which could include financial and/or human resources.

DG MOVE (IA draft and the associated Working Document draft; White Paper draft) put forward **traditional evidence**, addressing externalities (all). It also addressed effectiveness (IA draft and the associated Working Document draft) and cost-effectiveness, through models (IA draft). Moreover, DG MOVE addressed informational requirements (IA draft and the associated Working Document draft), as well as undesired effects (IA draft only).

Of the traditional evidence put forward, effectiveness and cost-effectiveness (through models), as well as undesired effects, are most specific – as put forward by DG MOVE (IA draft).

Regarding effectiveness, DG MOVE pointed to “GHG emissions and oil dependency reduction”. It also pointed to “limit the growth of congestion”.

Regarding cost-effectiveness, DG MOVE, in general, pointed to “total ... costs for the society“. It also, more specifically, pointed to “passenger transport costs includ[ing] capital costs, fixed operation costs and variable fuel and non-fuel costs (including taxes and charges)”, as well as to “users’ disutility ... reflected through the compensating variation”.

Regarding models (for addressing effectiveness and cost-effectiveness), this included the “TRANSTOOLS model” that is “a European Transport Network model covering all modes of transport for passenger and freight”. “The model is used to assess the level of congestion and of accessibility and the impact of (the pricing of) transport infrastructure.” This – also – included the “PRIMES-TREMOVE transport model” that “projects the evolution of demand for passengers and freight transport by transport mode and transport mean, based on economic, utility and technology choices of transportation consumers”. This model includes a “transport demand module” and a “technology choice module”. This – moreover – included the “TREMOVE model” that is “a policy assessment model for the emissions and environmental impact of transport”. It “is used to estimate the effects of various policy measures on transport demand, the resulting modal shifts, the vehicle stock renewal, the emissions of air pollutants and the effects on welfare.”

Regarding undesired effects, DG MOVE pointed to a “rebound effect” – with “technologies that improve the fuel efficiency of vehicles can lower the cost of transport and generate more travel ... and more congestion”. In addition, it pointed to another rebound effect resulting from “improved utilisation of infrastructure capacity”.

The actors – finally – **communicated** the novel solutions and the traditional solutions in different ways. The actors – firstly – set out the problems that the solutions are to address (I.). The actors – secondly – discussed the solutions as such (V.i. reflection and V.ii. critique). They also discussed undesired solutions as such (III.ii.).

The actors set out **novel problems** that the solutions are to address – novel mobility demand too high problems (I.ii.).

DG ENV pointed to improvements required for amount of transport, as well improvements required for travel need or for transport demand. It highlighted that “mobility must be decoupled from the transport volumes and demand”. “Mobility” in this case refers to “connectivity, access to goods and services”.

DG ENV and DG INFSO pointed to alternatives for practices/lifestyles. DG ENV pointed to establishing “connectivity”, and to the “access to equivalent goods and services”. DG INFSO pointed to ICT in general, and to “telepresence” more specifically.

As for the IA draft and the associated Working Document draft, DG MOVE pointed to improvements required for the amount of transport, for practices/lifestyles, as well as for urban planning. DG MOVE pointed to “transport activity levels”, as well as to “rising vehicle numbers, [and to] increasing traffic volumes”. It also pointed to “alternatives to mobility”. And, it pointed to “urban sprawl”.

DG MOVE also pointed to alternatives for practices/lifestyles, and for urban planning. It pointed to “alternative forms of accessibility (eGovernment, tele-working, etc)”, and to “a transition to a new way of life in an urban environment”. It also pointed to “compact cities”.

Of the novel problems put forward, improvements required for amount of transport and alternatives for practices/lifestyles are most specific – as put forward by DG MOVE (Working Document draft). It pointed to “transport activity levels”, as well as to “vehicle numbers, [and] ... traffic volumes”. And, it pointed to “alternative forms of accessibility (eGovernment, tele-working, etc)”, and to “a transition to a new way of life in an urban environment”.

The actors set out **traditional problems** that the solutions are to address – traditional mobility too inefficient problems (I.i.).

DG CLIMA and DG SANCO pointed to improvements required for vehicles and for the transport system, as well as alternatives for fuels (DG CLIMA) and for modes of transport (DG CLIMA and DG SANCO). Moreover, DG REGIO pointed to alternatives for modes of transport.

As for the IA draft and the associated Working Document draft, DG MOVE pointed to improvements required for fuels and for vehicles, as well as for transport modes and for the transport system. It also pointed to alternatives for these.

As for the White Paper draft, DG MOVE pointed to improvements required for vehicles, and for the transport system. It also pointed to alternatives for fuels and for vehicles, as well as for transport modes and for the transport system.

Of the traditional problems put forward by actors, improvements required for the transport modes and for the transport system are most specific – as put forward by DG MOVE (Working Document draft and White Paper draft respectively). Moreover, alternatives for fuels and for vehicles, as well as for transport modes, are most specific – as put forward by DG MOVE (Working Document draft, as well as White Paper draft for alternative for vehicles).

Regarding improvements required for transport modes, DG MOVE (Working Document draft) pointed to “efficiency”, as well as to “load factors”. Regarding improvements required for the transport system, DG MOVE (White Paper draft) pointed to “using resources more efficiently” and to reducing “dependence on oil”, as well as to “better use of network”.

Regarding alternatives for fuels, DG MOVE (Working Document draft) pointed to “lower carbon fuels”, as well as “low-carbon energy”. It also pointed to “alternative fuels”, and to “renewable energy sources”. Moreover, DG MOVE, more specifically, pointed to “electricity, hydrogen, and liquid biofuels”. It also pointed to “synthetic fuels ... methane (natural gas and biomethane) ... and LPG [‘Liquefied Petroleum Gas’]” and “LNG” (‘Liquefied Natural Gas) on the one hand, as well as “more advanced biofuels, based on waste and algae and requiring less primary resources” on the other hand. It also pointed to the use of these by “urban buses, taxis”.

Regarding alternatives for vehicles, DG MOVE (Working Document draft and White Paper draft) pointed to “new types of engine technologies” and “alternative propulsion systems” in general. It – more specifically – pointed to “electric, fuels cells, etc.” and to “electric or plug-in hybrid vehicles”, as well as to “magnetic levitation”. Moreover, DG MOVE pointed to “smaller, lighter and more specialised passenger vehicles”. It – more specifically – pointed to “weight and size” and to “new ... materials and design”, as well as to “ultra-compact ... electric ... vehicles”.

Regarding alternatives for transport modes, DG MOVE (Working Document draft) on the one hand pointed to “walking and cycling [,to ‘slow modes’ or ‘soft modes’], together with public transport” in general. It, more specifically, highlighted rail and metro, as well as buses. It also highlighted “smaller buses outside rush hours; ‘transport-on-demand’ through advance reservation systems”, “autonomous ... networked vehicles” and “dual mode transit”, as well as “Bus Rapid Transit (BRT),

[and] Personal Rapid Transit (PRT)”. DG MOVE on the other hand pointed to “car-sharing, bicycle sharing”, as well as to “park&drive”.

The actors – moreover – **discussed** the **solutions** and their **substantiation** (V.i. reflection and V.ii. critique).

Regarding solutions, DG ENV noted that the White Paper “does not reflect” the Working Document draft and the IA draft. And, DG ENTR noted that “the wording on some initiatives is very general”. DG CLIMA – then – called for solutions to be “explain[ed] more thoroughly” in the White Paper draft – and not only in the Working Document draft. DG CLIMA then also called for the “key strategic measures [,solutions] should be highlighted” in the White Paper.

Regarding evidence, DG ENTR called for “analysis to be further streamlined between different DGs during the preparation of the legislative proposals and the individual actions”.

Regarding traditional evidence (IV.i.), and models, DG MOVE (IA draft) explained that the “modelling exercise [is] to provide a stylised quantitative assessment of the effectiveness and efficiency of the identified Policy Options”. In this case, the “specification” of the policy options made “does not necessarily correspond to what would actually be proposed at a later stage”.

Also regarding traditional evidence, and models, DG REGIO called for “a consistent risk analysis (which includes sensitivity analysis) ... allow[ing] ... ranking the different options at stake”.

Regarding traditional evidence, and the evaluation criteria for analysis, DG ENTR noted that “cost-efficiency” or cost-effectiveness “is not compatible with sector-specific targets”. At the same time, DG ENV stressed the need for a sector-specific target for transport. DG REGIO – moreover – called for conducting cost-benefit analysis – rather than the cost-effectiveness analysis conducted for the IA. It explained that “(a) the application of cost-benefit analysis would allow for better justifying, and even strengthening, the reasons to justify the objectives of an EU transport policy, notably the emission reduction policy considering the related costs imposed to society and to particular

stakeholders; (b) the most beneficial option — between policy options achieving well defined targets ... is not necessarily the one imposing the lowest financial cost to society”.

The actors – moreover – **discussed undesired solutions** (III.ii.).

DG CLIMA opposed the traditional solution infrastructure subsidies with standards – with a focus on “alternative fuels”.

DG CLIMA also — as regards the traditional solution vehicles standards — opposed a focus on “energy efficiency”, rather than a focus on CO<sub>2</sub> emissions.

**Combinations** of narrative elements – then – emerge for the other policy work instance – for the policy work instance that relate to the ISC.

Regarding **novel combinations**, DG INFSO and DG ENTR – in a coalition – put forward a combination with a grounding of an innovation studies-based solution (II.ii.). The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out a novel problem that the solution is to address. In addition, the coalition discussed evidence and traditional evidence.

Another coalition – a coalition of DG CLIMA, DG ENV, DG REGIO and DG SANCO – put forward a combination with a grounding of a novel SPT-based solution (II.iii.). DG SANCO, in addition, put forward another such solution. The coalition did not substantiate this. Moreover – in terms of communication – the coalition set out novel problems and traditional problems that the solution is to address. In addition, the coalition discussed solutions, as well as traditional evidence. It also discussed undesired traditional solutions – partially calling for another traditional solution.

As for the IA draft and the associated Working Document draft, DG MOVE put forward a combination with a grounding of both novel innovation studies-based solutions (II.ii.) and novel SPT-based solutions (II.iii.). It only substantiated the former – the innovation studies-based

solutions (II.ii.). Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address. In addition, it discussed traditional evidence. As for the White Paper draft, DG MOVE put forward a combination with a grounding of both novel innovation studies-based solutions (II.ii.) and novel SPT-based solutions (II.iii.). It did not substantiate these. Moreover – in terms of communication – DG MOVE only set out traditional problems that the solutions are to address.

To sum up, the novel combinations put forward by actors on the one hand only encompassed one type of novel solution (coalitions), as well as both types of novel solutions (II.ii. and II.iii.) on the other hand (IA draft and the associated Working Document draft, as well as White Paper draft). The respective solutions were overall not substantiated – with the exception of IA draft and the associated Working Document draft (DG MOVE), showing innovation studies-based evidence (IV.ii.). Moreover – in terms of communication – the actors on the one hand set out novel problems and traditional problems that the solutions are to address, as well as set out only one type of problem on the other hand – coalition of DG INFOS and DG ENTR (only novel problem), as well as White Paper draft (DG MOVE) (only traditional problems). In addition, coalitions and actors on the one hand discussed solutions and undesired traditional solutions (coalition of DG CLIMA, DG ENV, DG REGIO and DG SANCO only), as well as discussed evidence and traditional evidence on the other hand (coalitions; as well as IA draft and the associated Working Document draft, DG MOVE).

Regarding **traditional combinations**, DG ENV and DG REGIO – in a coalition – put forward a combination with a grounding of three traditional solutions (II.i.). The coalition did not substantiate these. Moreover – in terms of communication – the coalition set out novel problems and a traditional problem that the solutions are to address. In addition, the coalition discussed solutions, as well as traditional evidence.

As for the IA draft and the associated Working Document draft, DG MOVE put forward a combination with a grounding of traditional solutions (II.i.). It substantiated these. Moreover – in terms of communication – DG MOVE set out novel problems and traditional problems that the solutions are to address. In addition, it discussed traditional evidence.

As for the White Paper draft, DG MOVE put forward a combination with a grounding of traditional solutions. It substantiated these. Moreover – in terms of communication – DG MOVE only set out traditional problems that the solutions are to address.

To sum up, the traditional combinations put forward by the actors encompassed a grounding of three traditional solutions (coalition), as well as a grounding of traditional solutions (DG MOVE – IA draft and the associated Working Document draft, as well as White Paper draft). Only DG MOVE substantiated these. Moreover – in terms of communication – the coalition and DG MOVE (IA draft and the associated Working Document draft, as well as White Paper draft) set out novel problems and traditional problems that the solutions are to address. In addition, overall the coalition and DG MOVE discussed traditional evidence – with the exception of the coalition also discussing solutions, and no discussion taking place for the White Paper draft (DG MOVE).

DG ENV and DG REGIO, as well as DG MOVE (IA draft and the associated Working Document draft, as well as White Paper draft) – notably – each put forward a novel combination<sup>77</sup>, as well as put forward a traditional combination. In this case, DG ENV and DG REGIO did so in a coalition for both.

Finally, zooming in – based on the most specific identified for the narrative elements solutions (II.), as well as evidence (IV.) and problems (I.) – a novel **most specific combination** and a traditional most specific combination emerge.

A **novel** most specific combination, **from** subsidies to R&D and the fostering of interactions between actors, as well as land-use policies and the development of competences; **to** improvements required for amount of transport, as well as alternatives for practices/lifestyles.

A **traditional** most specific combination, **from** subsidies R&D and vehicle standards, as well as vehicle taxes and vehicle subsidies, as well as infrastructure subsidies with standards; **to** effectiveness and cost-effectiveness, and models, as well as undesired effects; **to** improvements required for the transport modes and for the transport system.

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Encompassing one type as well as both types of novel solution, respectively – II.iii. as well as II.ii. and II.iii.

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