



Jenny Rademann

On Track or Off The Rails?

Intra-ministerial
decision-making
in transport
infrastructure
planning



Göttingen University Press

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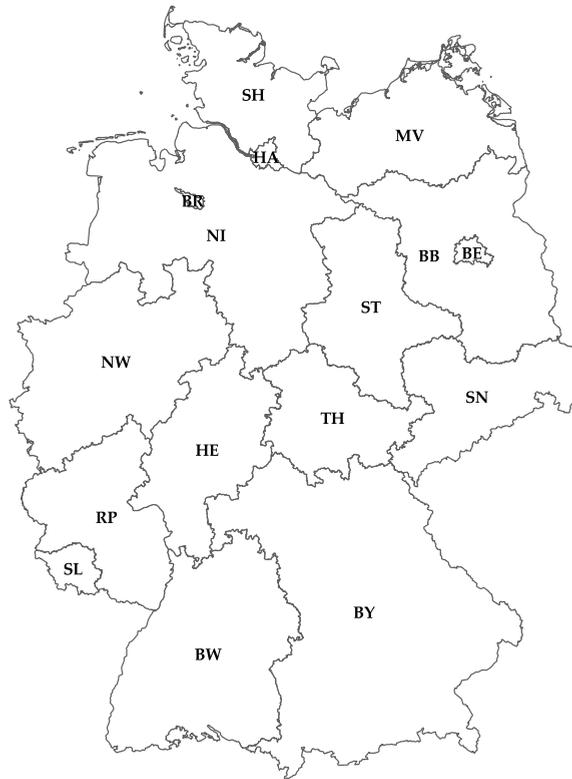
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Abbreviations

- BMVBS** *Bundesministerium für Verkehr, Bau und Stadtentwicklung* (Federal Ministry for Transport, Construction and City Development)
- BMVI** *Bundesministerium für Verkehr und digitale Infrastruktur* (Federal Ministry for Transport and Digital Infrastructure)
- BMWi** *Bundesministerium für Wirtschaft und Energie* (Federal Ministry for Economy and Energy)
- BRH** *Bundesrechnungshof* (Federal Audit Office)

BVWP	<i>Bundesverkehrswegeplan</i> (Federal Transport Infrastructure Plan)
DB	<i>Deutsche Bahn AG</i> (German rail company)
EBA	<i>Eisenbahnbundesamt</i> (Federal Railway Authority)
EU	European Union
IPCC	International Panel on Climate Change
HPA	Hamburg Port Authority
NASA	<i>Nahverkehrsservice Sachsen-Anhalt GmbH</i> (state company for regional transport services of Sachsen-Anhalt)
NIMBY	'not in my backyard'
NVS	<i>Nahverkehrsservicegesellschaft Thüringen</i> (state company for regional transport services of Thüringen)
PB	<i>Potentieller Bedarf</i> (projects with potential priority)
PSM	Public Service Motivation
QCA	Qualitative Comparative Analysis
TEN	Trans-European Networks
TEN-T	Trans-European Networks for Transport
FTIP	Federal Transport Infrastructure Plan
TÖB	<i>Träger Öffentlicher Belange</i> (public interest parties)
VB	<i>Vordringlicher Bedarf</i> (projects with high priority)
VB-E	<i>Vordringlicher Bedarf – Engpassbeseitigung</i> (projects with high priority for the elimination of bottlenecks)

VBB	<i>Verkehrsverbund Berlin-Brandenburg</i> (public transport association for Berlin and Brandenburg)
VDE	<i>Verkehrsprojekte Deutsche Einheit</i> (German Unity Transport Projects)
VMK	<i>Verkehrsministerkonferenz</i> (Conference of <i>Länder</i> Ministers of Transport)
VMV	<i>Verkehrsgesellschaft Mecklenburg-Vorpommern</i> (Transport Association Mecklenburg-Vorpommern)
WB*	<i>Weiterer Bedarf mit Planungsrecht</i> (other projects with development rights)
WB	<i>Weiterer Bedarf</i> (other projects)



Germany as composed by its sub-national units, the *Länder*
 (geo data from @GeoBasis-DE / BKG 2020 [labels added])

BW	Baden-Württemberg	NI	Niedersachsen
BY	Bayern	NW	Nordrhein-Westfalen
BB	Brandenburg	RP	Rheinland-Pfalz
BE	Berlin	SL	Saarland
BR	Bremen	SN	Sachsen
HA	Hamburg	ST	Sachsen-Anhalt
HE	Hessen	SH	Schleswig-Holstein
MV	Mecklenburg-Vorpommern	TH	Thüringen

Software and data availability

This thesis has been typeset in \LaTeX using Texmaker (Brachet 2018).

Figures have been created with Inkscape (Inkscape Developer Team 2020).

For the map on page 20 QGIS was used (QGIS Development Team 2021).

Content analysis was done using MAXQDA (VERBI Software 2018).

Transcription of the interviews was aided by easytranscript (E. John 2014).

The QCA and graphs were done with R (R Core Team 2020) in R-Studio (RStudio Team 2020) using the following packages:

- QCA (Duşa 2018)
- stargazer (Hlavac 2018)
- SetMethods (Oana and C. Q. Schneider 2018)
- ggplot2 (Wickham 2016)
- magrittr (Bache and Wickham 2014)
- ggrepel (Slowikowski 2020)

For the preparation of tables, MS Excel was used.

For reference management, I relied on JabRef (JabRef Development Team 2020).

Data and code for the QCA can be accessed under the following link:
https://data.goettingen-research-online.de/dataverse/rademann_bvwp2030

Please note, that for reasons of confidentiality interview audios, transcripts, and notes are not made public.

1 Introduction

Ministries are hubs of policy-making. Many political decisions either originate in ministries or are shaped by policy bureaucrats within ministries before they enter the more visible stages of the policy process, where they are debated by parliament and discussed in the media. Typically, ministries have large bureaucracies with long tenure and a more or less elaborate division of competences. Thus, policy bureaucrats in ministries accumulate field-specific expert knowledge as well as being part of the respective policy networks.

Still, much of what happens inside ministries remains in a black-box state. We know something about how and why ministers are chosen and ministries allocated among coalition parties (e. g. Carroll and G. W. Cox 2007; Bäck, Debus and Dumont 2011; Ecker and T. M. Meyer 2019). We also know a few things about those working within ministries (e. g. Vedder and Veit 2017; Bach and Veit 2018; Peters 2018, ch. 4) as well as about the interaction between bureaucrats and ministers (e. g. Peters and Pierre 2004; Schnapp 2004a; Hustedt and Salomonsen 2014). And certainly, there is a wealth of discussion

on determinants of policy outputs as the result of policy processes (as e. g. bespeaks the comparison of policy-process theories in Heikkila and Cairney 2018).

Remarkably little is known about processes unfolding within ministries. Ethnographic work by Rhodes (2011) and Trangbæk (2021) has opened up the black box and provides insights into British (Rhodes) and Danish (Trangbæk) ministerial life with a focus on top-level personnel. These studies distil internal narratives and sense-making on the side of top-level bureaucrats as well as ministers.

What remains absent in the study of ministries so far is a look into the founding steps of decisions prepared within ministries. This is what this study will turn to. I study the lower-level working units, the sections, where most work at draft laws and proposals is happening (*Referate* in German; I adopt the translation by Mayntz and Scharpf 1975, p. 64). These early processes form the basis, on which all subsequent steps build. In order to understand more comprehensively how political decisions come into being, this intra-ministerial part of the process deserves just as much scrutiny as cabinet or parliamentary bargaining. In this thesis, I study the following questions:

What determines the procedural set-up of intra-ministerial decision-making? How does that in turn influence intra-ministerial policy output?

I will use an example from national transport infrastructure planning to empirically grasp the realities of intra-ministerial decision-making. Specifically, cases will be drawn from German sub-national ministries of transport and their contributions to the latest national transport infrastructure master plan. Expert interviews as well as a collection of documents serve as a basis to reconstruct decision-making processes using qualitative content analysis and identify recurring patterns by means of Qualitative Comparative Analysis (QCA).

In this introductory chapter, I outline the existing research on ministerial decision-making and summarise my theoretical approach. I then introduce transport infrastructure policy as the empirical field used and the methods employed to grasp it. A third section delineates the contribution of this thesis. Finally, the outline of the thesis will be presented with brief summaries of the single chapters.

1.1 Studying ministerial decision-making ...

Ministerial decision-making unfolds within the hierarchical relationship between political top and bureaucratic working level (Bach and Wegrich 2020). It can involve draft laws, the preparation of executive orders, the preparation of bargaining positions, or the preparation of input for other levels of decision-making (what would be termed a 'production policy job' by Page and Jenkins 2005, p. 60). At the top of a ministry, usually an elected politician fulfils the position of minister, at times aided by other officials chosen not only for professional but also political criteria (Hustedt and Salomonsen 2014, p. 749; Christiansen et al. 2016, p. 1232). Depending on the administrative tradition (Kuhlmann and Wollmann 2013, pp. 38–39), the ministerial working level is dominated by those parts of the bureaucracy whose careers are usually not directly linked to electoral cycles (Dunleavy 1991, p. 201; Alesina and Tabellini 2008, p. 427; Peters 2015, p. 150). Bureaucrats who are tasked with drafting and re-working policies are also referred to as 'policy bureaucrats' (Page and Jenkins 2005, p. 55).

Ministers and their subordinate bureaucracies have been studied as agenda setters as well as negotiators. The potential for agenda setting by ministers is drawn from the powerful role that ministers possess as government actors formally responsible for a specific portfolio (Laver and Shepsle 1990, p. 874; Andeweg 2014, p. 542). Agenda-setting potential of bureaucrats follows from the information advantage of hierarchically lower levels as well as their longer tenure (e.g. Schnapp 2004a, p. 84; Workman 2015). In the inter-sectoral negotiation phase, ministers' roles as members of policy networks or as 'policy entrepreneurs' (Herweg et al. 2018, p. 26) come into focus. Bureaucrats take part in negotiations e.g. by coordinating with other ministries (Hegele 2018a).

What is left understudied are the early, intra-ministerial decision-making steps after an agenda has been set but before negotiations with extra-ministerial actors take place (exceptions are the studies by Mayntz and Scharpf 1975; Page and Jenkins 2005). This concerns internal position-formation as well as deriving drafts for policies. These steps usually unfold in the middle level of hierarchies rather than at the top levels (Mayntz and Scharpf 1975, p. 67; Page and Jenkins 2005, pp. 2–3). In contrast to inter-ministerial coordination and cross-party negotiations, this founding step of political decision-making so far remains in the shadows.

In this thesis, I address this gap and thereby follow the call by Bach and Wegrich (2020) to turn 'towards one of the field's core topics by investigating what is happening inside the "machine room" of government' (Bach and Wegrich 2020, p. 540). Using an empirical example from transport policy, I reconstruct intra-ministerial decision-making processes unfolding between sections and the political top of the ministry. By relying on a specifically executive-dominated policy, I study a very clear-cut case where ministerial decision-making is little likely to be confounded with other influences. The influence

of potentially confounding factors – like e. g. size, settlement structure, topography – setting the cases apart from each other is minimised by using a time-series approach to measuring the policy output, thus the output for every case is determined in comparison to this same case's earlier output. This allows isolating intra-ministerial decision-making as the influential concept. Thus, this thesis broadens the existing knowledge on ministerial decision-making by integrating the very early stages of policy formulation.

I base my analysis on the framework of actor-centred institutionalism (Scharpf 1997) and draw on neighbouring theories and literature to derive hypotheses. To that end, the theoretical frame draws on research strands focussing on the partisan hypothesis, on multi-level policy-making, on consultations, as well as on policy bureaucrats and administrative capacity. I briefly introduce each of these strands below.

My research interest is twofold: On the one hand, I seek to explain how topic salience and administrative capacity influence the set-up of the intra-ministerial decision-making process and how this affects the output produced. On the other hand, I study in what respect policy preferences and relations between different state levels contribute to the production of ministerial policy outputs.

From actor-centred institutionalism as put forward by Scharpf (1997) I adopt a focus on boundedly rational actors and their interactions unfolding in specific constellations. The actor groups at the heart of this study are ministerial bureaucrats and their political superiors. The dominant mode of interaction between politicians and bureaucrats is prescribed by their hierarchical relationship with the default assumption being, that the position of the hierarchically higher actor, thus of the politician, dominates the decision-making process among the two (Scharpf 1997, p. 197; Bach and Wegrich 2020, see also). Still, the work of policy bureaucrats is much more than filling in the details (Page and Jenkins 2005, p. 2). The figure of a 'shadow of hierarchy' (Scharpf 1997, p. 197) captures this more subtle working of hierarchies: Rather than simply translating political preferences into policy outputs, bureaucrats anticipate which courses of action among those considered will be acceptable to their superiors (Scharpf 1997, pp. 197–200). This taking into account of political preferences and feasibilities has been discussed in the literature as 'functional politicisation' (e. g. Mayntz and Derlien 1989, p. 401; Hustedt and Salomonsen 2014).

The partisan hypothesis forecasts ministerial outputs to be aligned with policy preferences formulated by the respective minister's party. In trying to appeal to their respective electorates parties pursue different policy lines (Hibbs Jr. 1977, 1992; Schmidt 1996). Ministers as the politically responsible figures in their respective departments are the ones best positioned to oversee the translation of party policy preferences into policy outputs (Laver and Shepsle 1990, p. 874). Even in coalition governments, ministers retain the ability to shape policies in their respective portfolio (Andeweg 2014, p. 542). A con-

gruence between ministerial policy outputs and a minister's party's policy preferences is thus the default expectation for ministerial policy production (Laver and Shepsle 1990, p. 874).

Multi-level relations among national and sub-national units have the potential to influence ministerial policy-making on the lower levels. The presence of a national level of decision-making constitutes a 'shadow of hierarchy' under which decision-making on sub-national levels unfolds (Scharpf 1997, pp. 197–200). Thus, by taking into account positions and expectations prevalent on the higher level, decision-making on lower levels might be adapted to avoid conflicts between the levels. From another perspective, the opposite might be true and lower levels exploit the multi-level game for purposes of blame-shifting (Benz 2007, p. 508; Heinkelmann-Wild and Zangl 2020, p. 964).

Consultations or other forms of public participation are an increasingly common part of decision-making processes (Wesselink et al. 2011, p. 2688; Rasmussen 2015, p. 271). Public participation might serve several purposes. The ones most discussed are collection of additional information, legitimacy-enhancement, and avoidance of problems in implementation (Wesselink et al. 2011, p. 2690; Fink and Ruffing 2019b, pp. 220–221). Unless consultation or participation is only set up to fulfil formal requirements – or formally conforming to normative expectations (Fink and Ruffing 2015) – they provide another source of input for ministerial decision-making that can impact the resulting output.

Policy bureaucrats are characterised by their role in policy formulation and therefore by their close cooperation with political actors, notably their respective ministers (Bach and Wegrich 2020). Their role is problematised mostly with regard to information differences between the political top-level and the bureaucratic working level (Bach and Wegrich 2020). As is usual – and functional – in hierarchical systems, information density is much higher on the lower levels than on the upper ones, which is referred to as 'informational asymmetry' (Gailmard and Patty 2012, p. 375; Huber and Shipan 2013). In combination with a certain degree of 'bureaucratic discretion' (Calvert et al. 1989, p. 588), this might lead to 'bureaucratic drift' (e. g. Epstein and O'Halloran 1994, p. 699) or 'delegation problems' more broadly (Bendor et al. 2001, p. 240), thus a potential misrepresentation of political wishes on the working level. This is especially relevant when the policy preferences of bureaucrats and politicians differ. Empirically, it could be shown that bureaucrats indeed might find it acceptable to deviate from their political superior's positions (for the example of Germany even increasingly so: Schwanke and Ebinger 2006, pp. 244–245; Ebinger, Lux et al. 2018, pp. 402–403; Veit et al. 2018, p. 417). As one consequence of such uncertainty about bureaucrats' actions, it is argued that politicians tend to keep a tighter grip on topics that are salient to them (Gormley Jr.

1986, p. 603), while bureaucrats are more prominently involved in deciding less salient topics (Bækgaard, Blom-Hansen et al. 2015).

I challenge the view that salient topics are the domain of politicians, while bureaucrats are left to decide less salient affairs only. Especially for salient topics, it is crucial that agreement in cabinet as well as with relevant outside actors is secured. The same logic is known from negotiations in international relations, where actors are more ready to compromise when a topic is salient in order to reach a decision at all (G. Schneider et al. 2010, p. 96; Warntjen 2012, p. 169). Consequently, a careful validation of policy proposals seems advisable. Such careful validation, however, needs the information and competences from the working level and might lead to a deviation from the initial political idea (for a similar idea compare Gormley Jr. 1986, p. 606).

Administrative capacity is an indispensable prerequisite for any form of public sector activity. It relates to the ability of the executive to fulfil its tasks and comprises staff level as well as financial and organisational resources, thus having ‘the right resources in the right place at the right time’ (Ingraham and Donahue 2000, p. 294). In the context of public administration, a lack of administrative capacity has been found to decrease responsiveness (Huber and McCarty 2004, pp. 490–491) and also works as a restraint on the implementation of governance innovations (Lodge and Wegrich 2014). In general, the capacity perspective implies that the scope for bureaucratic activities is limited by the degree of capacity the respective sections enjoy (Scharpf 1997, p. 51; Wegrich and Hammerschmid 2017, p. 36).

Taking all these perspectives together, I hypothesise the following:

1. Ministerial policy output follows the policy preferences of the respective minister when those are in line with higher-level preferences in multi-level settings.
2. Ministerial policy output is influenced by the interaction with third-party actors.
3. In complex decision-making processes, the policy output produced does not necessarily conform to the minister’s policy preferences.
4. When the topic under decision is salient, a complex decision-making process is set up.
5. High administrative capacity is a necessary prerequisite for a complex decision-making process.

The next section illuminates, on which empirical basis the analysis will unfold.

1.2 ... based on cases from transport infrastructure policy

What was planned then [in Germany] for the years between 2015 and 2030, was a project like the world had not seen since the Apollo project by the USA: Investments in road infrastructure came to a complete halt and were reduced to a minimum of maintenance measures. Financial means were re-channelled into a master plan for the construction of rail infrastructure, into research for transport-related information technology, into the integration of energy and transport systems, and into pre-competitive development of products for micro-mobility, [...].

(own translation of Rammler 2011, p. 24)

This quote on transport infrastructure planning in Germany is no account of real events. It presents a fictional review of mobility policy from the perspective of the year 2050, thereby delineating a positive vision of a transport strategy geared towards a transport transition from a mobility based on the private car to other – presumably more sustainable – forms of mobility.

The real master plan for transport infrastructure in Germany for the years 2015 to 2030, the Federal Transport Infrastructure Plan (*Bundesverkehrswegeplan*, BVWP) 2030, turned out somewhat different from Rammler's vision. Despite an increase in funds for rail infrastructure, it has drawn criticism from environmental organisations and agencies: The BVWP 2030 is seen as stabilising the road-oriented status quo of German infrastructure planning, as being entirely unrealistic given the huge amount of projects, and as under-representing environmental damages (BUND 2016; Landesbüro der Naturschutzverbände NRW 2016; UBA 2016).

On the surface, this outcome is rather surprising. The goals formulated for the BVWP 2030 included reductions of emissions and of soil sealing – besides the usual suspects 'smoothing transport flows' and 'enhanced competitiveness' among others (BMVI 2014a, p. 27). Furthermore, especially for road projects, there was emphasis put on well-founded proposals that would have to go through a rigorous assessment framework (BMVI 2018a). Still, the result was received rather critically from a sustainability perspective. Media-wise, the blame for this is directed at the Federal Ministry for Transport (now BMVI, formerly BMVBS) which has been led by ministers from the Bavarian Christian Social Union since 2009 (Balsler and Bauchmüller 2019). While this view might have merit in the case of individual projects, it disregards the bottom-up process behind the BVWP. Even though the BVWP is a federal strategy document informing federal law, it is to a large degree based on proposals made by the transport ministries on the level of the 16 sub-national units, the German *Länder*.

Rather than adding another assessment of the BVWP and the process leading up to it on the federal level (Heuser and Reh 2007, 2016; C. Fischer 2018), this thesis focusses

on the preparatory stage set on the sub-national level, that of the *Länder*. The *Länder* were asked to provide proposals of transport infrastructure projects that they would like the federal level to finance throughout the coming fifteen years. This proposal process is firmly in the hands of the respective sub-national transport ministries with one decision-making process per ministry and transport mode. This offers an opportunity for a medium-n comparative study of intra-ministerial decision-making.

The proposal stage for the BVWP 2030 thus delivers the cases for analysis. All 16 *Länder* were asked by the BMVI to provide project proposals for the road, the rail, and the waterway sector that they wished to see included in the BVWP. Thus, decision-making processes in 16 transport ministries are available for comparison.

Studying this proposal process on the *Länder* level has several advantages: First, comparing entities on the sub-national level allows holding many potentially influential factors – e. g. national laws and regulations – constant. Second, analysing the BVWP proposal stage offers the opportunity to study policy outputs that react to a clearly given task. Third, this process is firmly in the hands of the transport ministries, so that it is especially suited to study intra-ministerial decision-making. Lastly, the proposal stage of the BVWP is yet unstudied, so the analysis also contributes to a more comprehensive understanding of the BVWP process.

Besides being a suitable opportunity for studying intra-ministerial decision-making, scrutinising the proposal stage of the BVWP 2030 is also a contribution to research about a proclaimed transport transition. The striving for a more sustainable and especially more climate-friendly energy system is subsumed under the term of *Energiewende* in Germany (mostly translated as ‘energy transition’, see Czada and Radtke 2018, p. 45). Besides heating and electricity, transport is one of the main pillars under discussion in this respect (Radtke, Canzler et al. 2018, pp. 17–18). As in the other pillars, the discussion does not only revolve around forms of technological progress (sustainability as efficiency), renewable forms of energy (sustainability as consistency) but also touches upon necessary changes in infrastructure and in consumption – or in the case of transport: changes in mobility (sustainability as sufficiency) (Schweddes 2018b, pp. 14–16).

The discussion about a transport transition reflects the role of the transport sector in overall CO₂ emissions (Knie 2014, pp. 140–141) as well as in discussions of land use, noise and health issues (Engartner 2008, p. 213). In Germany, the transport sector causes 20 % of all CO₂ emissions (BMW_i 2021, p. 122). Worldwide, 23 % of energy-related CO₂ emissions can be traced back to the transport sector which is a ‘high-carbon economic sector’ (Glover and Low 2020, pp. 18–19). In a differentiation between transport as a means and mobility as an end, it has been posited that ‘mobility needs’ ought to be addressed with as little transport as possible (U. Becker 2018, p. 76). In the face of growing mobility demands, public and especially rail-based transport has been heralded as a solution to the

negative accompanying symptoms of transport – like congestions, noise, and pollution (Libbe et al. 2018).

There is a strong consensus, that car-centred transport planning needs to give way to a new orientation if sustainable mobility is to be achieved. This is well-established in the sustainability literature (Banister 2008, pp. 73–74; Gather et al. 2008, pp. 62–64; Schiller and Kenworthy 2010, ch. 1), where the ‘car-dependent society’ (Jeekel 2016) is at the heart of the criticism, and a shift to other modes of transport has been called for (Rye 2020, pp. 12–13). Railway transport is regarded as one such more sustainable mode, even though there are also voices calling for a more nuanced assessment (e.g. Wee et al. 2005; Givoni et al. 2009). Beyond the academic discourse, demands for a shift from road transport to a more railway-centred transport system have found their place in sustainability strategies on the national as well as on the EU level (Die Bundesregierung 2021, pp. 62–63; European Commission 2020, p. 3). The literature differs on whether failures to achieve sustainability transitions are foremost rooted in the institutions (Rietveld and Stough 2004, p. 1; Karl 2014, p. 74) or in a shortcoming of public discourse and public acceptance (Banister 2008, pp. 79–80; Rammler 2014, pp. 28–29).

When analysing decision-making in transport policy, transport infrastructure is a useful proxy. It is one of the remaining fields, where state planning is publicly accepted (Fraunholz and Hascher 2018, p. 161) and is also regarded as an indirect subsidy to the respective transport mode (Glover and Low 2020, p. 20). It is the very basis of the whole transport system – a change in the dominant mode of transport also requires a changed focus in infrastructure planning and construction for the respective transport mode, or, as U. Becker (2018) put it for the case of Germany: ‘If a modal shift towards public transport – busses and railways – were the main aim [...], increasing the attractiveness of individual motorised road transport by [constructing] federal motorways and thousands of bypass roads would not be sensible.’ (own translation of U. Becker 2018, p. 73) This makes master plans for transport infrastructure an interesting case in gauging developments in transport policy (Fichert 2017).

When discussing policy outputs, I will focus on outputs oriented towards a transport-transition, specifically towards more rail-based and less car-centred transport. This normative partiality follows from the consensus outlined above. This means, that the research undertaken here can also be read as answering a transition-oriented question, namely: What induces ministries to produce transition-oriented policy outputs? Notwithstanding this focus, the mechanisms discussed in this thesis can well be applied to other kinds of policies as well.

In order to empirically grasp decision-making in transport ministries, the analysis combines sources and methods. At the heart of the analysis are expert interviews with members of sub-national transport ministries. A rich collection of documents adds detail

as well as serving as a control. The material from interviews and documents is structured and categorised in a qualitative content analysis. The categories derived are then used in a formalised qualitative comparative analysis (QCA) with the aim of identifying recurring patterns among the cases. The results allow to contribute to several discussions.

1.3 Results and contribution

The analysis of intra-ministerial decision-making in the run-up to the BVWP 2030 enriches several discussions. It, of course, allows to say something about ministries producing transition-oriented outputs and about transport infrastructure planning in Germany. More importantly though, it also leads to some more general assessments about the handling of information differences between politicians and bureaucrats and about the use of public participation. I'll briefly sketch out each of these contributions, starting with the more policy-specific ones and then outlining the more general implications.

With the study of the preparatory phase of the BVWP 2030, I provide an update to the literature on German federal transport infrastructure planning (Garlichs 1980; Reh 1988; Heuser and Reh 2007, 2016; C. Fischer 2018). In many respects, prior findings about the BVWP process are confirmed, such as an executive and expert dominance (Heuser and Reh 2007, p. 226, 2016, p. 258; C. Fischer 2018, pp. 260–261). Furthermore, it becomes clear that despite a general trend of Europeanisation, transport infrastructure planning remains a predominantly national affair with little practical relevance of the Trans-European Networks (TEN) (van Exel et al. 2002, p. 310; Dyrhaug 2013, p. 116; C. Fischer 2018, pp. 254, 261). Overall, this study provides a more encompassing picture of the origin of large transport infrastructure projects in Germany – from highway bypasses around cities to motorway extensions.

Policies that strengthen transitions will likely remain on the research agenda for years to come. The transport transition is just one of them. The sustainability transition more broadly remains prominent on the national as well as the international level. Similar discussions aimed at fundamental changes of policy fields are e.g. resulting from the ongoing demographic change in many countries (Lodge and Wegrich 2014, pp. 1–5). Thus, there are plenty of fields where knowledge on what makes ministries produce transition-oriented outputs can be generalised to. I show that in multi-level systems the assertive or confrontational behaviour towards higher-level expectations is important and that transition-oriented outputs can at times be realised even without a minister's party preferences being aligned with this goal. The set-up of the decision-making process can help to overcome a status quo orientation. This is valuable input when trying to understand how ministries can change course from within their internal decision-making processes.

The interplay between politicians and bureaucrats is relevant beyond the question of transitions. Bureaucrats and politicians interact in a hierarchically structured way (Gailmard and Patty 2012, p. 355), that comes with an ‘informational asymmetry’ (Gailmard and Patty 2012, p. 375) to the advantage of the bureaucrats on the working level and also endows them with a certain degree of discretion (Pierre and Peters 2017, p. 159). There is a wide literature on the potential problems arising from such information differences (Niskanen 1975; Brehm and Gates 1997; Schnapp 2004a; Blom-Hansen et al. 2020). However, some also warn against too critical a view of bureaucratic autonomy (Bach and Wegrich 2020, p. 542).

The analysis presented in this thesis implies that bureaucrats and politicians interact in a by and large trusting way. It thereby confirms – at least for the German case – the dialogue model stipulated by Mayntz and Scharpf (1975). That means, that criteria for decision-making as well as decision proposals wander back and forth between the political and the bureaucratic level in ministries. Bureaucratic work is shaped by ‘functional politicisation’ so that political needs and wishes are already anticipated on the working level (Mayntz and Derlien 1989, p. 401; Hustedt and Salomonsen 2014, p. 750; Veit et al. 2018, p. 417).

The results presented call into question the assertion that bureaucrats are solely left to decide non-salient topics. Rather, loosening political control over policy outputs even for salient topics might be a strategic choice in order to arrive at solutions that are defensible vis-a-vis coalition partners as well as the public. This enriches the perspective on who – politicians or bureaucrats – gets to decide on what kind of topics and moves the discussion beyond considerations of bureaucrats deviating from ministers’ wishes.

This study also contributes to the research field of public consultation and participation. Public participation has become a norm in infrastructure planning. Still, it is not yet clear when and to what effect participation ought to take place. The analysis corroborates critical stances on very early participation, as such undertakings are prone to suffering from a lack of information and will often not fulfil citizens’ expectations about the effects of their participation (Fink and Ruffing 2019b, pp. 233, 235, 2019a, pp. 209–210). In the same time, the analysis gives reason to believe that well-wrought participation schemes at the earliest possible stage after the brainstorming stage are more likely to produce input that is also meaningful for the ministerial actors and might therefore find its way into the policy.

From the analysis of process characteristics and administrative capacity a lesson can be learned for the discussion about the adequate size of the state apparatus. The analysis shows very clearly, that decision-making processes involving numerous actors, among them the broader public, very often are only set up given a certain level of bureaucratic capacity. Thus, there is an inherent paradox in striving for a small-sized as well as

participation-oriented bureaucracy. If public participation is to be strengthened further and is supposed to be more than formal window-dressing, well-resourced administrations are needed to carry through these processes (for a general argument about a balance between state tasks and capacities compare Lodge and Wegrich 2014). Where bureaucracies have to be downsized for various reasons, meaningful participation processes can rather not be expected. This goal-conflict should be considered when studying public participation frameworks as well as when thinking about administrative resources.

1.4 Outline

This thesis is structured as follows: Part I is dedicated to the research design including the theoretical framework and the methodological set-up. Part II introduces the policy under study and presents the analysis. Part III discusses the results and concludes. I briefly summarise each chapter below.

Chapter 2 delineates the theoretical framework and deduces hypotheses. Actor-centred institutionalism (Scharpf 1997) is used for its actor model based on bounded rationality and its general understanding of interactions among political and bureaucratic actors. As actor-centred institutionalism is a framework rather than a theory (Treib 2015, p. 277), further input from the literature is embedded in order to arrive at hypotheses. After presenting actor-centred institutionalism, the chapter discusses the role of politicians in intra-ministerial policy-making as well as that of bureaucrats. Furthermore, I develop an argument about the influence of topic salience and administrative capacity on the set-up of the decision-making process and its effect on ministerial outputs. The chapter results in the five hypotheses already stated.

Chapter 3 recapitulates the case selection, provides an overview over the empirical material used as well as the data collection process, and introduces the two methods of analysis that I rely on: qualitative content analysis loosely based on the framework by Gläser and Laudel (2010) and QCA (Ragin 1987; C. Q. Schneider and Wagemann 2012). As regards the empirical material, I collected documents from parliamentary databases, ministerial and other official web-pages, as well as from NGOs, and I conducted expert interviews with officials from sub-national transport ministries and their subordinate authorities. Overall, more than 150 documents were collected for the analysis and 40 persons provided information in the course of interviews or e-mail exchanges.

Chapter 4 introduces the policy field of transport infrastructure policy and provides background knowledge about infrastructure planning in Germany in general as well as about the BVWP in particular. Infrastructure policy is characterised by complexity, uncertainty, and ambiguity (Wegrich and Hammerschmid 2017, pp. 27–28), which has implications for the decision-making processes in this field. In Germany, transport infra-

structure planning unfolds in a multi-level framework with some competences on the federal and some on the sub-national level. Further complexity has been introduced by increasing demands for public participation or at least consultation. The BVWP as a masterplan for the transport infrastructure to build during the coming ten to fifteen years has a history reaching back into the 1970s. It is continuously criticised for a lack of central planning and its over-ambition when it comes to road building (Heuser and Reh 2007, 2016). The BVWP 2030 was prepared in a renewed framework with higher standards for project proposals as well as a more sophisticated assessment procedure (BMVI 2018a).

Chapter 5 presents the content analysis. The aim of this chapter is to structure the rich material at hand and condense it into categories. Starting out from concepts identified in the theoretical discussion, codes and sub-codes are extracted from the material and illustrated with anchoring examples. As a result of the content analysis, five conditions are identified that are then used for the QCA.

Chapter 6 presents the second analytical step and searches for patterns among the cases. First, I analyse whether topic salience and administrative capacity combine to bring about complex decision-making processes. Second, ministerial policy preferences, multi-level anticipation, as well as process complexity are drawn together in an attempt to explain ministerial outputs. For each analytical step, robustness tests are provided and discussed.

Chapter 7 draws together the findings from the two analysis chapters and assesses the five hypotheses on these grounds. It shows that the proposal process for the BVWP shares traits typically observed in ministerial decision-making. On top of that, the discussion establishes the importance of process characteristics for understanding intra-ministerial decision-making, the role of administrative capacity in the striving for more inclusive decision-making processes, as well as the relation between salience and process complexity.

Chapter 8 summarises the whole research endeavour and concludes.

Part I

Research design

2 Theoretical frame

In this chapter, I develop the theoretical framework for the ensuing analysis. It guides the analysis and allows ordering the empirical findings as well as arriving at potentially generalisable conclusions about settings where several policy bureaucracies are tasked with preparing regional input for a policy on a higher level within a multi-level framework. What I seek to explain are the policy outputs of ministries in a field dominated by the executive.

Before delineating the theoretical frame for the analysis, I briefly summarise the perspectives from which ministries have mostly been studied. Building on that, I explain the theoretical approach I take. Ministries have, among others, been studied from a coalition perspective, embedded in governance frameworks, and as hierarchical organisations. From this literature, several insights are gained:

From a coalition perspective, portfolio allocation is an important object of bargaining in coalition negotiations, as ministries are coupled with resources for policy preparation

in the respective policy field (Laver and Shepsle 1990, 1996, pp. 30–33; L. W. Martin and Vanberg 2008; Bäck, Debus and Dumont 2011). This holds even though the potential for reaping the fruits of this advantage is limited by coalitional and legislative restraints (Warwick 1999, p. 390; L. W. Martin and Vanberg 2020, pp. 338–339). Ministers are thus understood as powerful figures in governments with respect to the policy fields covered by their respective portfolios. However, the degree of ministerial autonomy – and thus the potential to realise partisan rather than governmental goals – varies among countries (Bäck, Debus and Tosun 2015, p. 571). Additionally, a treatment of parties as effectively unitary actors has been criticised as unrealistic (Wiesendahl 2013, p. 41; Alexiadou 2016, ch. 1.2; S. Martin 2016, pp. 282, 292).

In a governance perspective, ministries represent the policy-field specific units of ‘the state’ that have to interact with non-state actors in order to solve public problems (Pierre and Peters 2019, p. 89). Little unified as the governance literature is (Peters 2014, pp. 301–302), there is no coherent stance on the role for ministries. Still, from the perspective of advocacy coalitions, they are conceptualised as being part of networks within the respective policy sub-system (Jenkins-Smith et al. 2018, p. 139) and interact with various other actors with interests in the same field (Döhler 2020). The ‘Neo-Weberian’ view of public administration incorporates such a view in the study of bureaucracies (Bouckaert and Pollitt 2011, pp. 118–119). The governance perspective puts bureaucracies on an equal footing with other actors in society (Seibel 2019, p. 61). Such a perspective has however been challenged and a return to a more traditional understanding of bureaucracy advocated (Seibel 2019, p. 62; taking up a point by Olsen 2006).

Ministries as organisations are foremost studied with regard to potential delegation problems arising between the political top and the bureaucratic working level (Huber and Shipan 2013; Fleischer 2016; Bach, Hammerschmid et al. 2018). The political level is understood as following short-term considerations due to re-election concerns (Rhodes 2011, p. 129; Peters 2015, p. 150). In contrast, the bureaucracy is characterised by long tenure and relative independence from election cycles, it could thus potentially aim for goals that are more long-term and not necessarily related to the desires of the electorate (Dunleavy 1991, p. 201; Peters 2015, p. 150). The ‘Neo-Weberian’ view as well as discussions of the politicisation of bureaucrats would, however, contradict such a strict juxtaposition of the two levels (Bouckaert and Pollitt 2011, pp. 118–119; Hustedt and Salomonsen 2014; Ebinger, Veit et al. 2019).

Locating the literature with regard to the policy cycle, the focus is on ministries and their bureaucracy mainly when discussing agenda setting or the bargaining stages of policy formulation. In the former case, the long-term nature and specialisation of the bureaucracy become important assets (e.g. Schnapp 2004a, p. 84; Workman 2015). In the latter case, ministers might be studied as ‘policy entrepreneurs’ (Herweg et al. 2018,

p. 26), or their bureaucracies can be taken in view for their role in coordinating activities with other ministries (Hegele 2018a).

Rather rarely are these perspectives drawn together to explain how ministries produce certain policy outputs internally. Little attention has so far been paid to the unfolding of the intra-ministerial decision-making process in-between agenda-setting and inter-sectoral bargaining (exceptions are the studies by Mayntz and Scharpf 1975; Page and Jenkins 2005). The bureaucratic-politics literature has set the target for itself to bring light to intra-governmental and intra-ministerial decision-making (Allison 1971; Allison and Halperin 1972; Allison and Zelikow 1999). In the same time, Allison and Zelikow (1999) admit, that this framework demands a wealth of detail that is hardly ever attainable (Allison and Zelikow 1999, p. 387). What is more, also the bureaucratic politics framework focusses very much on bargaining between 'large organizations and political actors [...] who compete in attempting to affect both governmental decisions and the actions of their government' (Allison and Halperin 1972, p. 42) rather than on within-unit decision-making processes.

The founding step of intra-ministerial decision-making is so far left understudied. Still, it is important, as it creates frames and anchors for the subsequent negotiations with other ministries as well as in the legislative arena. Understanding 'how policy is made' (Page and Jenkins 2005, p. 5) in intra-ministerial decision-making is even more salient for settings that are dominated by the executive so that extra-ministerial decision-making steps are severely limited or even missing. Such settings are frequently found in infrastructure governance, that is characterised by government and expert interaction (Wegrich, Hammerschmid and Kostka 2017, pp. 1–2).

In order to arrive at an insightful and in the same time manageable framework, I focus on the interaction between two actor groups within ministries, namely politicians and bureaucrats. Alongside those, I consider multi-level relations and third-party actors such as economic or societal interest groups. Actor-centred institutionalism serves as a framework for the conceptualisation of these actors and their interactions. Actor-centred institutionalism itself – being a framework and not a theory – does not allow deducing any hypotheses about policy outputs (Treib 2015, p. 277). Therefore, I draw on additional strands of literature to formulate expectations about the ministerial policy outputs produced and about the processes leading up to them. The argument I make addresses a political level of decision-making as well as the intra-ministerial decision-making process.

The argument starts out from the default expectation that ministerial outputs follow from the respective minister's policy preferences. In multi-level frameworks, this hinges on anticipated higher-level concerns being in favour of these policy preferences. Furthermore, third-party interests have both the potential to shift policy outputs away from ini-

tial policy preferences and the potential to strengthen initial policy preferences. Third-party interests gain entry to the decision-making process when the decision-making process is more complex than a simple translation of policy preferences into outputs by the ministerial bureaucracy.

Complex decision-making processes are understood as assembling a variety of information sources and spending more effort on the definition of decision-making criteria. Such processes enhance the information advantage of the bureaucracy and make a direct translation of the minister's policy preferences into ministerial outputs less secure. Such processes will be chosen when the topic under decision is salient, thus, successfully passing – as well as implementing – the respective policy is important. This latter point partly contradicts existing literature on the relationship between salience and political versus bureaucratic influence. However, I will argue that such an interpretation is plausible.

The chapter is structured as follows: In a first step, I present the main framework and spell out the actor model associated with it. Next, I outline the role of politicians as well as bureaucrats in their interaction relation. Building on that, I present an argument about the role of topic salience and process complexity for the output of decision-making processes in ministries. In a final section, I summarise the theoretical framework presented and delineate hypotheses.

2.1 Actor-centred institutionalism

This section introduces the broader theoretical framework along the lines of which I develop the theoretical argument for the analysis. I briefly introduce actor-centred institutionalism and discuss its actor model. Furthermore, I summarise what actor-centred institutionalism has to say about ministers, bureaucrats, third-party actors and multi-level relations. These aspects are then developed further in subsequent sections.

This thesis focusses on intra-ministerial decision-making. Thus, the ministerial bureaucracy is at the heart of this study. Policy bureaucrats – as set apart e.g. from street-level bureaucrats – are central to political decision-making (Page and Jenkins 2005, p. 2; Döhler 2005, p. 218; Bækgaard, Mortensen et al. 2018, p. 240). Within the ministry, they interact with the political top of the ministry – the minister and politically appointed top-level staff – as the hierarchical superior level (Bach and Wegrich 2020). Outside the ministry, interactions involve citizens, economic actors, NGOs and other third-party actors as the ministerial bureaucracy is increasingly the addressee of interest-group activities (Döhler 2020; Fraussen and Halpin 2020). Additionally, I take into account multi-level relations.

I conceptualise the relations between these actor groups along the lines of actor-centred institutionalism as put forward by Scharpf (1997). The interaction modes as well as interaction orientations between the actors involved in a decision-making process are central to this approach (Scharpf 1997, p. 12). The framework acknowledges, that policies do address problems and are derived within a given environment. What the framework emphasises are, however, ‘actors’, their ‘constellations’ and ‘modes of interaction’, that influence how problems are translated into policies (Scharpf 1997, p. 44).

The basic tenet of actor-centred institutionalism is, that – as policy outcomes will rather not be the result of the decisions of one single actor (Scharpf 1997, p. 69) – decisions on policies are the results of interactions among actors that meet in certain constellations and institutional settings which in turn restrain what modes of interaction are available (Scharpf 1997, p. 39). Scharpf distinguishes between individual and corporate actors that are characterised by their capabilities and action orientations, both of which are influenced by the institutional setting (Scharpf 1997, pp. 43–44). Actor constellations circumscribe the plurality of actors involved, their strategy options and preferences (Scharpf 1997, pp. 44–45). Depending on the institutional settings, up to four different modes of interaction might be available to the actors: *unilateral action* is always possible, *negotiated decision* presupposes at least some institutional structuring e. g. in form of networks, *majority vote* depends on the existence of some formalised association, while *hierarchical direction* is the most demanding mode of interaction and presupposes an organisation like e. g. the state (Scharpf 1997, pp. 46–47).

Actor-centred institutionalism conceives of its actors as strategically acting – and in that sense rational – entities. The framework does, however, not pre-suppose any specific goals or levels of information for these actors, which Scharpf – following Ostrom et al. (1994) – points out as the defining difference between a ‘rational-choice framework’ and a ‘rational-choice theory’ (footnote 3 in Scharpf 1997, pp. 34–35). An assumption of ‘private self-interest’ as an all-explaining motivation of actors is rejected (Scharpf 1997, p. 181). Rather, actors’ goals are treated as contingent on institutional structures and norms, that are in themselves variable (Scharpf 1997, p. 34).

By taking into account norms, orientations, and capacities, actor-centred institutionalism views its actors as ‘boundedly rational’ (Scharpf 1997, p. 195; for an overview on bounded rationality see Jakobi 2019, pp. 57–59). Thus, actors do try to achieve as-good-as-possible results but can only do so within the restraints of their environmental and cognitive limitations (Simon 1955, 1997; B. D. Jones 2017). As a result, the chosen solution is not the optimal one, but ‘merely the best solution that is available under the circumstances’ (Simon 1997, p. 5). Czada and Windhoff-Héritier (2019) subsumed Scharpf’s framework under their broader label of ‘political choice’ (Czada and Windhoff-Héritier 2019, p. 9), which is essentially a framework of bounded rationality in public decision-

making (Wegrich and Hammerschmid 2017, p. 23). Within such a framework, institutional, socio-economic, issue-specific network, as well as timing characteristics can be discussed (Jakobi 2019, p. 59) – institutional characteristics being the focus for actor-centred institutionalism.

The dominant institutional characteristic in the study of politicians and bureaucrats is their delegation relationship. In that relationship, politicians delegate tasks to bureaucrats. Thus, they interact in a hierarchical mode (Scharpf 1997, p. 197). Consequently, the default assumption is that the politician's position dominates in decision-making processes involving politicians and the bureaucrats they delegate to (Scharpf 1997, p. 198). However, the decision-making criteria for differentiating between better and worse policy options have been argued to be decided on in a 'dialogue model' between politicians and bureaucrats (Scharpf 1997, p. 178). Thus, the effect of hierarchy is not straight-forward. Rather than blindly fulfilling orders, bureaucrats act under a 'shadow of hierarchy' and anticipate what course of action will be deemed acceptable by their superiors (Scharpf 1997, pp. 197–200) – a trait that will re-appear under the label of 'functional politicisation' (Mayntz and Derlien 1989, p. 401) in the section on bureaucrats below.

Multi-level relations – where they exist – add another step in this delegation chain. Politicians on a lower level within a multi-level framework are themselves in a delegation relationship with higher-level politicians. This relationship can be differently shaped in various policy domains with diverse sets of competences attached to actors on each level. In a situation, where the higher level is in charge of the policy at hand and the lower level is asked to hand in proposals, politicians on the two levels are again in a hierarchical mode of interaction with the default assumption that the higher-level position will prevail. The 'shadow of hierarchy' (Scharpf 1997, p. 197) applies here as well, implying that lower-level decision-makers try to anticipate the reactions of the higher level when making their decisions.

Third-party actors are less easily positioned in Scharpf's framework – even though 'horizontal negotiations' between bureaucracies and organised interests are explicitly acknowledged as a part of policy formation (Scharpf 1997, p. 198). Third-party actors are a heterogeneous group with ties of different strengths to politicians and bureaucrats. Some third-party actors can be conceptualised as part of a more or less institutionalised subsystem network, that brings together specialised actors with expertise or at least interest in the policy field in question (Jenkins-Smith et al. 2018, p. 139). In that capacity, they then more or less regularly interact with politicians or bureaucrats. Their interaction can thus be framed as a network constellation, that creates at least 'weak trust' (Scharpf 1997, p. 137) and enables negotiations (Scharpf 1997, p. 46). Other third-party actors interact with ministries on a very sporadic, maybe even one-time basis only. With Scharpf, these

latter interactions can be understood to take place within an anarchic field or under minimal institutions (Scharpf 1997, p. 46).

Both forms of interactions with third-party actors, in networks as well as in the anarchic field, bear traits of a negotiation. The goal sought is often a compromise between competing positions where no side can unilaterally impose its preferred solution. The latter is only true, when ‘the problem of faithful implementation’ (Scharpf 1997, p. 117) of the compromise can be solved – either because respect for the compromise is mandated by law and enforceable or because third-party actors are otherwise able and likely to hinder or block the implementation of unilaterally enforced alternatives.

The interaction relationships between these given groups – politicians and bureaucrats, politicians on different levels of multi-level settings, politicians, bureaucrats and third actors – need not be static. Rather they depend on the policy under decision and the decision-making process associated with it. Thus, actors’ orientations in form of policy preferences and motivations, as well as the changeable structures, in that decision-making unfold, need to be taken into account when explaining ministerial policy outputs.

The next three sections will take a closer look at the role of politicians, bureaucrats, and the decision-making process in producing ministerial policy outputs. The final section will then draw everything together and present the theoretical framework used for analysis as well as spelling out hypotheses.

2.2 Politicians

Politicians – here: ministers – can be expected to shape policy outputs of ministries for three reasons: They have policy preferences and are in a position to realise them, they are the addressees of accountability claims, and they are the receivers of delegation from higher levels in multi-level frameworks. I discuss these three points in turn.

First, ministers hold different policy preferences. In a representative democracy strongly shaped by parties, the most intuitive guess about political output is that party-membership of ministers should make a difference for their area of responsibility, and that this output should somehow reflect the respective party’s programmatic stance on the respective issue. After all, if not, what sense would there be in electing parties (or party members) and allocating portfolios among parties, that have agreed to form a coalition government, in the first place? (Sack and Töller 2018, p. 606) This intuition found its theoretical backup in partisan-influence hypothesis insofar, that the latter argues that different parties will carry out different policies when in government in order to please their respective electorate and secure re-election (Hibbs Jr. 1977, 1992; Schmidt 1996).

There is some dispute whether this holds under coalition governments, as the coalition treaty – and not the individual party or election programme – is supposed to

be the defining programmatic document for all government actors under such circumstances (Ganghof and Schulze 2015, pp. 118, 121). While Laver and Shepsle (1990) argue ‘that jurisdiction-specific policy outputs will tend toward those preferred by the party of the relevant minister’ (Laver and Shepsle 1990, p. 874), others find that ministers and their party membership make little difference for overall government policy (Müller-Rommel 1994, pp. 165–167) and that coalition treaties function as an effective constraint (Moury 2011, p. 400). From a literature review on ministerial roles in cabinet government Andeweg (2014) concludes that, while a minister’s autonomy is indeed constrained by cabinet hierarchies and collective decision-making, ministers nevertheless do enjoy autonomy with regard to policies connected to their portfolio (Andeweg 2014, pp. 539–542).

Second, ministers are the addressees of calls for legitimacy and accountability from extra-ministerial actors including the public at large. Political programmes are usually not directly translated into policy outputs without further deliberation, consultation and information of third parties with vested interests in the respective issues. Indeed, failing to do so risks alienating parts of the public even when there is broad agreement among parliamentary parties (Tosun et al. 2015, p. 166). A continuing trend of increasing use of public participation in national states as well as the EU reinforces that (Wesselink et al. 2011; Fink and Ruffing 2019b). This might happen for instrumental reasons thus as avoiding trouble later, normative reasons, or substantive search for additional information (Devine-Wright 2011, p. 20; Wesselink et al. 2011, p. 2690). The latter rationale echoes exchange theory which posits that lobbying groups provide decision-makers with expertise in exchange for access to the decision-making process (Bouwen 2002, 2004). In either case, interest representation has the potential to be a co-driver of policy variance (Klüver 2012, 2013).

Failing to react positively to represented interests needs legitimization. In hierarchical systems, political accountability is called on in such cases (Scharpf 1997, p. 183). Depending on the overall institutional set-up, there are options available to refer such calls to other levels of government and thus shift the blame for presumably unresponsive behaviour elsewhere (Milio 2014, pp. 386, 388, 395; Heinkelmann-Wild and Zangl 2020). Shifting blame to another level is an option for enacting unpopular policies as well as for not enacting popular policies. This is done the easier, when the relations between the levels are poorly understood by the public (or even by other administrative actors) in a given policy field.

Third, in multi-level frameworks, government politicians on lower levels interact with those on higher levels. The aforementioned blame-shifting is just one instrument out of the toolbox of multi-level governance (Benz 2007, p. 508). More prominent, especially in the context of Germany, is the discussion of interdependence in decision-making

(Scharpf et al. 1976; Kropp 2010; Benz et al. 2016). In this context, aspects of voluntary coordination between the levels have gained attention as well (Hegele and Behnke 2013).

The hindrances in multi-level policy-making follow – besides organisational and substantive complexity – from non-homogeneous interests across levels (T. Fischer and Pennekamp 2018, p. 446). Often enough, the interests of lower-level units do not cluster (only) around party membership of their governments, but around e. g. similar economic situations (Kropp 2010, p. 75; Heinemann et al. 2015, pp. 680–681; Fink, Bartels et al. 2019, pp. 149, 153). While the higher level takes into consideration more encompassing interests, the lower-level units have a more restrained focus, geographically speaking.

The motivation for the respective level to take the other level's interest seriously depends on the mode and orientation of their interaction. In circumstances where the two levels act by and large independently of each other, anticipation might be reduced to adherence to higher-level legal frameworks. In circumstances where a lower level might propose but not decide a certain policy for the higher level, the interaction unfolds in the shadow of hierarchy (Scharpf 1997, pp. 197–200). Here, the lower level is required to deliver input to the upper level with the explicit possibility that the upper level might reject it or demand additional information. This resembles a signalling model of delegation, where the delegating principal decides on the basis of reports from its agents (Bendor et al. 2001, pp. 241, 249–251).

Summing up what has been said so far, three aspects are to be considered. The default assumption for ministerial output is a realisation of the minister's party's position on the issue at hand. Third-party interests can be taken into account in decision-making for various reasons, especially when failing to do so might result in legitimacy concerns. In multi-level frameworks, lower-level politicians will anticipate higher-level expectations, however, high degrees of interdependence between the levels might lead to more consensual decisions.

The next section looks at ministerial decision-making from the bureaucratic perspective.

2.3 Bureaucrats

Bureaucrats are expected to behave responsively towards their superiors but are nevertheless equipped with ample opportunity for interpretation and avenues for agenda setting (Andeweg 2014, p. 540). Proponents of ministerial influence generally agree that the ministerial bureaucracy plays a crucial role (Müller-Rommel 1994, p. 158; Rhodes 2011; Kempf et al. 2015, pp. 38–39). Be it, that the preparation of law proposals is firmly in the hand of the ministerial bureaucracy (Döhler 2005, p. 218), be it that bureaucrats are prominent in coordinating positions across subnational units (Hegele 2018b, p. 262).

From Weber ([1921] 1976) onward, at the latest, the fundamental importance of a well-functioning bureaucracy remains undisputed, even though not always at the forefront of awareness, as Rhodes (2011) put it: 'It all may seem very predictable and boring. There are times when I think we forget that bureaucracy is a clever invention.' (Rhodes 2011, p. 308)

There is reason to believe that the bureaucracy has some effect on the policy output of ministries. The main concern regarding the interplay of politics and administration is the latter's potential for independent action and the question to what extent this potential is realised to the detriment of politicians' preferences. Potential for independent action involves agenda-setting, strategic interaction – i. e. deliberate and potentially biased use of negotiations and information flows –, and bureaucratic drift (Schnapp 2004a, p. 82). The scope of this potential problem has been discussed in the literature with respect to bureaucrats' motivations, their politicisation, as well as administrative capacity. I will take up these three considerations in this section.

First, the motivation of bureaucrats has been discussed from a variety of angles. As Scharpf noted, even though hierarchical systems might be highly effective if properly instituted, there is no guarantee for their members' welfare-enhancing motivation (Scharpf 1997, p. 178). The literature suggests different approaches to the motives of bureaucratic agents. The bottom-line is a mix of self-interest and altruistic orientations with an instrumental competition for staff, resources and competences (Downs 1967). Niskanen (1971) narrowed this down to the point, that bureaucrats strive to maximise their budget, even though it remains unclear which benefits they gain from this – additional staff or higher salaries are possible explanations (Blais and Dion 1990, pp. 663, 673). Dunleavy (1991) integrated these views into a theory of bureau shaping, stating that bureaucrats have qualitative preferences about their work environment, they prefer working in small elite bureaus close to power centres (Dunleavy 1991, p. 202). This was later qualified insofar that 'policy jobs' are viewed favourably by those exercising them (Gains and P. John 2010, p. 461; Page and Jenkins 2005, p. 77).

The principal-agent model assumes rational actors undertaking cost-benefit calculations for their actions. Despite its straightforward modelling of relations between politicians and bureaucrats, the application remains unsatisfactory, when it comes to the details (Scharpf 1997, p. 179). A central tenet of the model, namely that agents would engage in 'shirking', thus work avoidance, whenever possible, has not found empirical support in the context of bureaucracy (Brehm and Gates 1997, p. 107; Pierre and Peters 2017, p. 157). Rather, bureaucrats care about which outputs they produce and therefore might fulfil some tasks more eagerly than others (Brehm and Gates 1997, pp. 43–44). For the German context, Döhler (2005) argues that incentives for shirking are greatly stifled already by the institutional framework (Döhler 2005, p. 217).

To the question of which (policy) contents bureaucrats would strive to further, the study of the concept of Public Service Motivation (PSM) has brought some – though for the present purpose severely limited – insight. Given the impression that egoist motivations as assumed by economic theories of bureaucracy could be satisfied much better in other work environments, a growing literature has tried to assemble an alternative explanation for why people choose to work in the public bureaucracy in the first place. This literature emphasises that ‘[p]ublic service motivation is most commonly associated with particular normative orientations – a desire to serve the public interest, loyalty to duty and to the government as a whole, and social equity.’ (Perry and Wise 1990, p. 369; building on that among others: Perry and Hondeghem 2008; Vandenabeele 2008; Hammerschmid et al. 2009; Ritz et al. 2016; Vandenabeele et al. 2018). In comparisons between public and non-public employees, it has been found that public-service officials are on average less rewards-oriented than private-sector employees and more likely to be motivated to contribute to the public good (Crewson 1997, p. 505; Houston 2000, pp. 716–717). Critiques concern the equation of values with sectors rather than job types and side-lining preferences about the respective work-life balance (Buelens and Van den Broeck 2007, pp. 69–70; R. K. Christensen and Wright 2011, pp. 724–725) as well as quality of concept formation more broadly (Bozeman and Su 2015).

It is in no way clear, whether the existing research on PSM can be taken to mean, that public officials in general are motivated to ‘contribute to society’ (Vandenabeele et al. 2018, p. 261) or just more likely to be thus motivated than private-sector ones. In the former case, the motivation problem as raised by Scharpf (1997, p. 178) would indeed be solved, as then the hierarchical settings of the ministerial bureaucracy would be populated by individuals, whose behaviour is strongly norm-oriented towards the welfare of society (as is also implied by the notion of ‘principled agents’: Brehm and Gates 1997, p. 202). In the latter case, nothing much can be said about the size of the potential problem that Scharpf raises.

Even well-meaning bureaucrats could find themselves in contrast to their political superiors, thus a second concern addresses the degree to that bureaucrats are guided by political considerations. The most direct form of securing responsiveness by the bureaucracy to the political leadership is ‘the substitution of political criteria for merit-based criteria’ in recruitment (quoted from: Peters and Pierre 2004, p. 2; similar: Kopecký et al. 2012; Vedder and Veit 2017; Dahlstrøm and Holmgren 2019). This ‘formal politicisation’ (Hustedt and Salomonsen 2014, pp. 749–750) – as opposed to patronage – is a formal, legally enshrined mechanism (Hustedt and Salomonsen 2014, p. 749) that is – if at all – used for the top levels of public bureaucracy (Christiansen et al. 2016, p. 1232). However, functional politicisation, i. e. the voluntary awareness for and the consideration of political wishes and necessities by the bureaucracy, is more widespread (Mayntz and Derlien

1989, p. 401; Hustedt and Salomonsen 2014, p. 760; Veit et al. 2018, p. 417). Functional politicisation extends to the involvement of bureaucratic actors in negotiations with relevant third-parties as well as to the interaction with the media and the public on behalf of political superiors (Christiansen et al. 2016, p. 1233).

Thus, the prevailing view in the strand of administration research literature that I lean on here is one of a largely unproblematic cooperation between politicians and their bureaucracies. Rather than stipulating discordances, it is argued that bureaucracy fills the void left by political inactivity, when problems are not salient enough to draw political attention (C. M. Jones 2010; Bækgaard, Blom-Hansen et al. 2015, p. 460) – a notion I will partly challenge below – or takes care of routine tasks that are only brought to the attention of the political level, when conflicts arise (Schnabel 1980; Hegele 2018b, p. 263). This implies, that whenever there are political programmes to execute, the bureaucracy will in general compliantly do so.

An exception to this rule arises when bureaucrats perceive the solutions preferred by their superiors as illegal or grossly inadequate. For bureaucrats, there is a balance to strike between pure political responsiveness, offering ‘frank advice’ and preserving ‘public integrity’ (Mulgan 2008, p. 350). In studies for Denmark and Germany, especially higher-rank and formally politicised bureaucrats have been found to be especially ready to criticise dubious decisions of their superiors and place more weight on legal correctness than on political responsiveness (J. G. Christensen and Opstrup 2018, p. 491; Veit et al. 2018, p. 432). Bureaucrats are in fact expected to prominently consider legal and technical criteria when preparing input for their political superiors (J. G. Christensen and Opstrup 2018, p. 488). Delegation theorists hold, that this influence of bureaucrats furthermore increases in highly technical policy fields, as these fields are characterised by higher levels of uncertainty which induces politicians to grant bureaucrats wider discretion (Gormley Jr. 1986, pp. 603, 605–606; Huber and Shipan 2013, p. 854; for a corresponding empirical finding: Veit et al. 2018, p. 424)

Third, bureaucratic work is shaped by the material and immaterial resources available. Besides actors’ orientations, actor-centred institutionalism addresses their capabilities. For bureaucratic actors, this matches the Weberian approach (Olsen 2006, p. 4). Administrative capacity is seen as a necessary condition for any bureaucratic action to take place, even though Scharpf claims in the same breath, that little generalisable knowledge could be attained from such discussions (Scharpf 1997, p. 51). Conceptually, administrative capacity relates to the bureaucratic system as a whole, rather than individuals working in it (Addison 2009, p. 10). Capacity is a requirement for bureaucratic action and the extent to that it is available will necessarily limit the scope of the output (Scharpf 1997, p. 51; Wegrich and Hammerschmid 2017, p. 36). It is closely tied to the availability of resources as well as their timing (Ingraham and Donahue 2000, p. 294).

Even though Scharpf is hesitant about the analytical value of actors' capabilities, I argue that they ought to be included in the analysis insofar as they might enable or restrain other explanatory factors. Huber and McCarty (2004) e. g. argue on the basis of a formal model that low-capacity bureaucracies tend to be less responsive to political goal definitions (Huber and McCarty 2004, pp. 490–491). One key consequence of bureaucratic capability, given the centrality of expertise and information, is the bureaucracy's ability to collect knowledge about the policy question under decision. Especially a public-service motivated bureaucracy would need a sound knowledge base to produce public-good enhancing decisions. While Drolc and Keiser (2020) find, that the capacity of oversight-institutions is crucial for good policy implementation (Drolc and Keiser 2020, pp. 13–14), the same logic applies to administrative capacity in ministries for policy-making.

Summarising the account on the bureaucratic actor group, two main messages can be formulated: First, outright conflict between politicians and bureaucrats seems unlikely, rather are policy-specific variations to be expected in this relationship. Second, any potential for independent bureaucratic action can only be realised in the presence of sufficient resources, thus, sufficient administrative capacity.

The following section focusses on the interaction between politicians and bureaucrats in the decision-making process on ministerial outputs.

2.4 Decision-making process

The interaction between politicians and bureaucrats is a constitutive feature of any intra-ministerial decision-making process. I argue that the transposition of a minister's policy preferences into outputs is eased by non-complex decision-making processes, and that the complexity of a decision-making process is influenced by whether the issue under discussion is a salient one or not. In order to develop this argument, I first take a look at information flows within ministries, then I discuss the topic of salience, and finally bring both aspects together in discussing them as reasons and consequences of process complexity.

Ministries are large, hierarchically structured organisations. A major reason why bureaucratic influence is discussed at all is the information advantage that lower-level bureaucrats enjoy, when it comes to technical information in their area of expertise – be it from their longer tenure or from contact with experts (Peters 2010, pp. 198–199). Indeed, the whole concept of hierarchy would be pointless, if all information were concentrated at the top and inundated the upper levels of the hierarchy. Instead, bureaucratic systems combine hierarchy with an elaborate division of labour (Simon 1997, pp. 7–9), that allows treatment of information from more policy areas than a single unit ever could process. In the opposite direction, information on political preferences is concentrated at the top

of the ministry. Hence, a certain degree of information asymmetry is inevitable – and desirable – in hierarchical settings (Huber and Shipan 2013, p. 850).

This begs the question of information flows between the levels (Scharpf 1997, pp. 174–175). According to Downs (1965), bureaucrats pass on information in a biased manner, both upwards to their superiors and downwards to subordinates (Downs 1965, p. 434). Blom-Hansen et al. (2020) could demonstrate, that bureaucrats do also use policy information strategically and there is at least a plausible potential that politicians could thus be influenced by biased information flows (Blom-Hansen et al. 2020, pp. 16–17).

Even in the absence of ill-will on the bureaucrats' side, biased information flows might occur. Bureaucrats are understood as valuing their own field of expertise more than others and ascribing higher importance to this field (Halperin 1971, p. 75; Wegrich and Hammerschmid 2017, p. 29). This is also plausible from a psychological perspective, that suggests, that humans tend to mistake readily available information – thus, the own field of expertise – for all relevant information (Kahneman 2011, pp. 85–88). Bureaucratic perception is thus biased towards the own department (Dearborn and Simon 1958, p. 140).

Bureaucratic influence might thus move policy outputs away from the minister's policy preferences. The information asymmetry between politicians and bureaucrats is the root cause for assumptions about 'bureaucratic drift' in policy implementation (e. g. Epstein and O'Halloran 1994, pp. 699–701) and 'delegation problems' more broadly (Bendor et al. 2001, p. 240). Given the biases just mentioned above, this remains plausible even in the absence of shirking or intentional deviation. With higher degrees of bureaucratic discretion and higher information loads, this potential problem is exacerbated – inversely, limiting discretion is supposed to decrease bureaucratic drift at the cost of decreasing the usefulness of delegation as such (Epstein and O'Halloran 1994, pp. 699–701).

Bureaucratic influence might even be desirable in some case. Given existing norms of legality and technical adequacy, some deviation from pre-formulated policy preferences might at times even be implicitly expected (Veit et al. 2018, p. 418). Furthermore, granting discretion to bureaucracies might even serve to insulate decision-making against (too much) political interference from either the minister's own party or from coalition partners. Bureaucrats then become 'delegate-trustee[s]' (Majone 2001, p. 105) of more general commitments.

Not all topics are equally important for ministers and they have no problem with ceding control over those that are less important to them (Gormley Jr. 1986, p. 603). The term of salience captures how important a given topic is for an actor (Warntjen 2012, p. 169). In other words, bureaucrats are 'regular' participants in decision-making processes on all kinds of topics, while politicians will focus on only relatively few topics that they deem important (Gormley Jr. 1986, p. 603; for an empirical test: Eshbaugh-Soha 2006).

Following this line of thought, the salience of a given topic influences to what extent political or bureaucratic actors shape a policy output. The literature concludes that more salient topics are dealt with by politicians, while less salient topics are the realm of bureaucratic decision-making (Häge 2007, p. 322; Bækgaard, Blom-Hansen et al. 2015, p. 469). The empirical evidence produced is, however, narrowly focussed on budget decisions (Bækgaard, Blom-Hansen et al. 2015) or rather related to the bargaining stage than to that of policy formulation (Häge 2007). A study for independent agencies finds that agencies dealing with more salient topics are more likely to be held politically accountable, thus underscoring the nexus between salience and politicisation (Koop 2011, p. 228).

I argue that this equation of salient topics with high political influence is not plausible when specific policy solutions are concerned. It is not plausible that political actors should simply try and push through their policy preferences on salient topics. Borrowing an idea from International Relations, salient topics are those, where the adoption – and, one might add, faithful implementation – of a policy is most valued (G. Schneider et al. 2010, p. 96). This can be inferred from actors' increased readiness to compromise in order to reach a decision in negotiations about topics salient to them (G. Schneider et al. 2010, p. 96; Warntjen 2012, p. 169) as long as a 'basic benefit' is secured, i. e. the compromise is not so extreme as to offset all benefits (Moravcsik and Vachudova 2003, p. 49).

Warntjen (2012) sees salience as being derived among other things from the '(estimated) policy impact, the political sensitivity of an issue or the attention it receives from core constituencies' (Warntjen 2012, p. 169). Thus, given the interaction relations that politicians find themselves in – most notably with coalition governments, but also members of the respective subsystem network –, simply pushing an agenda does not appear a likely way to ensure that a policy is adopted. What is more, where third-party interests might hinder implementation, a successful policy strategy has to take these interests into account – at the very least to scout ways for their circumvention.

Thus, when an issue is salient, it is important for the respective ministry to have this issue addressed in a manner that will likely result in the adoption of a corresponding policy. The default assumption for a good solution is the respective policy position of the minister's party. Still, feasibility and acceptability of such a solution have to be ensured – both in the decision-making process and for the implementation stage. Thus, incorporating other voices in the decision-making process might help to mitigate potential conflicts between the coalition partners or with external actors (Blom-Hansen et al. 2020, p. 17). In order to ensure adequacy of the solution for a complex problem, additional information gathering might be essential (Blom-Hansen et al. 2020, p. 17). The resulting decision-making process will consequently be more complex than for non-salient issues.

It is important to note here, that salience in this argument solely relates to the importance of the policy at hand as perceived by the minister responsible for the respective portfolio. In other words, 'it is primarily relevant how political actors perceived a proposal contemporaneously, that is, while adopting (or implementing) it.' (Warntjen 2012, p. 169) Their view on salience might be but does not have to be in line with the importance of a topic as perceived by the broader public, i. e. the 'public salience' (Kollman 1998, p. 11). For the example for EU online consultations, it has been established in the literature that interest organisations' readiness to participate in consultations is higher for topics with high public salience (Rasmussen et al. 2014, p. 265; Røed and Wøien Hansen 2018, p. 1457), thus increasing the supply of external input. The argument made here adds a different perspective and posits that salience as understood from a ministerial perspective raises ministerial readiness to consult third-party actors in the first place, thus increasing the demand for input.

Process complexity is understood as the amount of steps that a decision-making process encompasses. Additional steps, that are not obligatory, might among others involve pre-studies, the development of concepts, voluntary inter-ministerial coordination or consultations with third parties. Hence, complexity is a plausible path for addressing the challenges outlined above: Additional steps taken might address possible reservations from coalition partners, anticipate implementation problems, or pre-empt legitimacy concerns. Furthermore, steps might be added that explicitly focus on defining and defending decision-making criteria, thus preparing the ground for successful arguments later in the process.

Additional decision-making steps involving third parties can, however, only be taken when the administrative capacity available permits it. These additional steps increase the information load that has to be handled by the ministerial bureaucracy. This concerns both the administrative work involved in setting these steps up and the work involved in interpreting the incoming information.

The information disadvantage of the minister vis-a-vis the bureaucracy increases with growing complexity. Intra-ministerial processes have been found to be decided on in a dialogue model between minister and bureaucracy (Scharpf 1997, p. 178). In a similar vein, the horizontal negotiations between bureaucrats and other actors below the ministerial level are accompanied by a 'vertical dialogue' between minister and bureaucracy (Mayntz and Scharpf 1975, pp. 100–102; Scharpf 1997, p. 198). Still, each additional step in the decision-making process implies a wealth of additional information. Only some of this information will be directly available to the minister – most notably that from cabinet meetings or coalition committees. All other information will pass through the hands of the bureaucracy first and will only be passed on in a condensed – possibly biased (Blom-Hansen et al. 2020, pp. 16–17) – selective way. Without such selection, hierarch-

ical systems would cease to work (Scharpf 1997, p. 198). Hence, more complex processes increase the information advantage of the bureaucracy.

Various degrees of process complexity are conceivable and influence the predictability of the resulting policy output. The policy preference of the minister is the default condition to explain ministry outputs. In the most simple model, the minister's party programme explains what kind of policy the ministry will produce. This presupposes that little else influences the decision-making process. The task for the bureaucracy would thus be a translation of a political programme into a mirroring policy output without much additional consideration.

In a more complex process the result is less predictable. When considerations and interests enter the decision-making process that are unrelated to the minister and the respective party, it is not clear from the outset to what extent the output will mirror the initial political position. Ministers might try to engage in strategical 'deck-stacking' (Lupia and McCubbins 2000, p. 302) so that only such input is sought that reinforces their initial position, still, there remains an element of uncertainty regarding the resulting input. It is thus not clear, whether the additional input sought will be in favour of the minister's policy preferences, nor how far it might lead the bureaucracy to adapt the policy proposal away from the minister's initial position.

Even though such complexity might at first glance seem risky for the minister, there are at least three reasons conceivable why it might nevertheless be attractive: First, it might make the decision reached more convincing. Second, the overall policy-goal might be more important to the minister than the technical details. Third, the additional procedural steps might serve as a warning system against upcoming opposition. I spell out each of these points below.

First, the additional evidence produced – regardless whether informants are strategically pre-selected or not – might be used to convince coalition partners, the broader public, or critics of any kind of the advisability of the proposed solution. This might be done by explicitly invoking that the decision is informed by evidence (even though that would be “policy-driven” evidence’: Head 2016, p. 475), or implicitly by generating the impression that the process was rational and fair (McCubbins, Noll et al. 1987, p. 253).

Second, the policy goal might be much clearer to the political level than the exact technical way how to achieve it (McCubbins, Noll et al. 1987, p. 244). Under such circumstances, a process that would ‘enfranchise important constituents’, ensures that the political goal is more likely to be heeded (McCubbins, Noll et al. 1987, p. 244). In other words, subjecting decision-making to a more complex process serves as a credible commitment to the respective policy goal. This principle is well-established for trustee relationships that are deliberately insulated against political determination of details (for the two delegation types compare Majone 2001, p. 104; Fink and Koch 2016, pp. 282–283).

In consequence, the preferences held by political actors about specific policy contents become less relevant.

Third, the additional steps serve as a kind of ‘fire alarm’ – even though not strictly in the sense of principal-agent theory. Instead of warning the minister against unwanted deviations by the bureaucracy, as would be the objective of a fire alarm as conceived of by principal-agent theory (McCubbins and Schwartz 1984, p. 166), both minister and bureaucracy learn whether their intended policy solutions are likely to meet opposition from other relevant actors. Due to the higher capacity for information processing of the bureaucracy, most of this learning will happen there, while the minister is more likely to be informed in a more summarising manner that rather resembles a report about activities undertaken by the bureaucracy in this complex process than a direct fire alarm – in the word of Lupia and McCubbins (2000) the minister would be ‘relying on the agent’s self-report’ rather than receiving ‘testimony of a third party’ (Lupia and McCubbins 2000, p. 295).

In consequence, ministers can be expected to give up control over a decision-making process when that promises a defensible solution to a salient problem. That means that such a solution will also be acceptable to such third actors that might otherwise hinder the policy’s approval or cause problems during the implementation phase. This contradicts to some extent the existing literature on the effect of salience on the division of labour between politicians and bureaucrats. It does, however, fit the notion that bureaucrats usually know very well which topics are important to their ministers and have a very good sense of what kind of solution might therefore be acceptable, which makes information differences less of a problem (Scharpf 1997, p. 198). It is also consistent with arguments of strategic process design and of credible commitments achieved by establishing trustee relationships.

The next section summarises the overall line of argument and deduces hypotheses.

2.5 Overall framework

The theoretical argument put forward here can be summed up as follows: By and large, ministerial policy outputs follow the political lines defined in the respective minister’s party’s election programme with changes made for multi-level or third-party acceptance. When a topic is salient, the political costs for decision-making failure rise and it is especially important to produce a defensible solution. In order to help the latter along, more complex decision-making processes are set up for salient topics whenever the administrative capacity available permits it. Complex processes, however, entail that their result is less predictable. Figure 2.1 on the facing page illustrates the reasoning delineated in the previous sections.

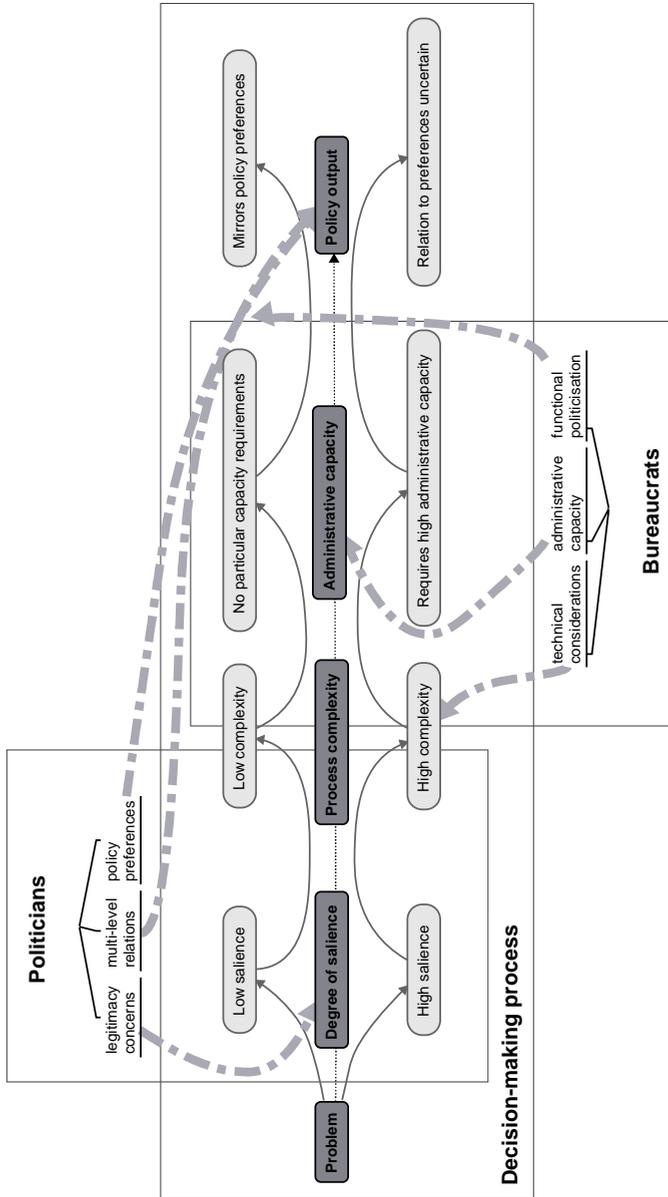


Figure 2.1: Theoretical framework

Following these lines of thought, five hypotheses are put forward:

Hypothesis 1: *Ministerial policy output follows the policy preferences of the respective minister when those are in line with higher-level preferences in multi-level settings.* This hypothesis follows from considerations of ministers' abilities to influence policies within their portfolio, the largely unproblematic interaction between ministers and bureaucrats, as well as the shadow of hierarchy imposed by multi-level relations.

Hypothesis 2: *Ministerial policy output is influenced by the interaction with third-party actors.* This hypothesis follows from the notion that intra-ministerial decision-making does not take place in a political and societal vacuum, but takes into account interests from other actors within the respective subsystem. The direction of such influence cannot generally be predicted beforehand.

Hypothesis 3: *In complex decision-making processes, the policy output produced does not necessarily conform to the minister's policy preferences.* This is to say that in a complex decision-making process the result is less predictable than in simple processes. The complexity might just strengthen the case for realising the minister's policy preferences, or it might just as well assemble enough evidence and critical voices to move the output in another direction.

Hypothesis 4: *When the topic under decision is salient, a complex decision-making process is set up.* The argument behind this hypothesis relies on the assumption that for salient topics an adequate and feasible solution is desired. Consequently, other actors' stances on the topics as well as available evidence have to be taken into account.

Hypothesis 5: *High administrative capacity is a necessary prerequisite for a complex decision-making process.* This hypothesis follows from the consideration that complex processes increase the workload for the ministerial bureaucracy. Therefore, administrative capacity is crucial for the realisation of such processes.

These hypotheses will guide the analysis. The next chapter will introduce the methods and data employed.

3 Methods

This chapter outlines the methods used for this thesis. After a brief introduction of the considerations behind the selection of cases, it describes the process of data collection from documents and interviews as well as the kinds of analysis performed by way of content analysis and qualitative comparative analysis (QCA).

In this thesis, I study decision-making in the ministerial bureaucracies of the German *Länder*. This limits the number of cases to 16 or – if referring to the decision-making processes for both road and rail proposals – to 32. Thus, methodologically, the study is situated within the realm of medium-n research. As Hall (2003) put it, the term methodology refers to ‘the means scholars employ to increase confidence that the inferences they make about the social and political world are valid’ (Hall 2003, p. 373). My analysis is grounded in Critical Rationalism in that I start from deductively derived propositions (Blatter and Haverland 2012, p. 10). It also has leanings towards Critical Realism in that I look into process and configurations instead of inferring causality from regular asso-

ciation only¹ (Blatter and Haverland 2012, pp. 12–13). Thus, I adopt an approach that assumes an objectively existing reality independent from the researcher's mind (Jackson 2016, pp. 40, 86).

As befits non-large-n research, I will look at a variety of observations for each case, building on some theoretically derived categories but also having an eye out for the new and unexpected within the cases. For the term 'observation' I rely on the definition put forward by Blatter and Haverland (2012): 'those pieces of information that are located on the lowest level of abstraction' or 'information that we find "out there"' (Blatter and Haverland 2012, p. 21). For adequate measurement in qualitative contexts, usually 'a plurality of observations' will underlie each individual 'variable score' (Blatter and Haverland 2012, p. 22) – or in the case of QCA: the calibration of each condition. Thus, causal inference can never follow from one observation only (Blatter and Haverland 2012, p. 22; for a somewhat different understanding of observations but a similar conclusion compare King et al. 1994, p. 208). Section 3.2 will provide insight, how I collected observations from documents and interviews.

The analytical strategy is that of Qualitative Comparative Analysis (QCA), which casts its shadow over the prior analytical step of content analysis. While already informative in its own right, the content analysis is a vital precursor to QCA in this case, as it enables me to calibrate my data with the rigour that is necessary to arrive at valid results using QCA (or, indeed, any other medium- or large-n analysis) – calibration being the QCA-specific term for the link between operationalisation and measurement. The more fine-grained derivation of the explanatory conditions thus takes place in the first part of the analysis chapter. In this chapter here, the main outcome transition-oriented ministerial output, that does not rely on the content analysis, is operationalised and all other conditions are briefly presented. Coding schemes are provided for all conditions and outcomes.

This chapter makes transparent the methodological choices underlying the research process and discusses the implications for the analysis. It starts with a reflection on case selection both in a geographical sense as with respect to the policy field. The second section delves into the processes of collecting documents and interview material. Section 3.3 covers the two modes of analysis employed: qualitative content analysis and QCA. The final section presents thoughts on operationalisation and introduces the lines along which the cases are calibrated for the QCA.

¹ Jackson (2016) would contradict this, noting that QCA – which is my main research strategy here – would 'press the boundaries of a neopositivist methodology' without however moving beyond them, thus lacking the element of 'transfactualism' characteristic of Critical Realism (Jackson 2016, pp. 78–79, 88–89).

3.1 Case selection

The research interest of this thesis centres on determinants of intra-ministerial decision-making. I want to find out, how decision-making processes can be structured and what difference that makes for the output. In order to have a group of ministries that are as similar as possible in everything except their decision-making processes, I analyse decision-making in German sub-national ministries, more specifically in the *Länder* ministries of transport on projects to propose for the BVWP 2030. This choice of decision-making cases fulfils three criteria: highly comparable in-country cases, practical feasibility, availability of a fitting policy for analysis.

Germany lends itself for analysis for conceptual reasons. The federal structure entails the availability of sub-national decision-making units that are very similar in a multitude of regards due to their embeddedness in a larger national framework (Hegele 2020, p. 8). Relevant for the study at hand, the basic institutional structure of the *Länder* is very much the same – parliamentary democracy, working parliaments, strong executive underpinned by a ministerial bureaucracy – even though they differ with regard to institutional details like their electoral systems or the use of direct democracy (Freitag and Vatter 2009). While the *Länder* do also differ with regard to demography, economic standing, settlement structure, and the like (Jeffery et al. 2016, p. 168), they are still impacted by the same national political discussions – e. g. on public participation – and are subject to the same higher-level rules and regulations – e. g. on transport planning. This makes instances of ministerial decision-making in the *Länder* valuable cases of comparison as many potentially relevant factors of influence will be constant or very much limited in their variability, so that the influence of marked differences between the *Länder* stands out more clearly (Freitag and Vatter 2009, p. 412).

Practical concerns arise as the research question demands a qualitative approach which involves expert interviews. Consequently, profound knowledge of the language spoken within the ministries is a must – administrative jargon at times being intricate enough anyway (Helfferrich 2014, p. 561). So, being a mother-tongue speaker certainly helps. The language requirements thus greatly reduce the cases I could have studied for the research interest outlined.

The policy I study is the *Länder* proposals for the federal infrastructure master plan passed in 2016, the BVWP 2030. For analysis, the BVWP proposals have the advantage of being the answer to a uniform policy task set by the federal level. This means that all *Länder* ministries of transport had to react to the same task within about the same time. Thus, differences in time and policy circumscription are ruled out. Still, there is no formal prescription on how the decision-making process within the *Länder* ought to be organised (Landtag Brandenburg 2012, p. 3). Furthermore, the policy output is easily discernible and narrowly defined as the output consists in lists of project proposals

for different transport modes among which I study decision-making for road and for rail projects.² The periodical nature of the BVWP also allows comparison with earlier versions and thus an assessment of changes per *Land* holding many *Land* specific characteristics nearly constant (which would be a classical argument from panel data analysis, e. g. Giesselmann and Windzio 2013, p. 10).

I choose the BVWP 2030 for analysis, rather than earlier BVWPs, due to its recency. The construction of decision-making processes depends on the availability of published information as well as the accessibility of potential interviewees who have a memory of the respective process. As will be seen below, this second criterion was already strained to some extent under the present circumstances with some of those actively involved in BVWP preparation no longer holding a position in the respective ministry. Going farther back would just exacerbate the problem. In terms of document availability, the study of more recent processes profits from high levels of digitalisation allowing easy access to publicly available official documents as well as to websites set up by the ministries studied, which are not always archived. Additionally, the comparison with the predecessor BVWP of 2003 is relatively unproblematic, there is no reason to assume any particular bias – unlike with the BVWP 1992 before that, which was heavily influenced by the effects of German re-unification in 1990 (Heuser and Reh 2016, pp. 247–248).

In consequence, studying intra-ministerial decision-making in German *Länder* ministries of transport about projects to propose for the BVWP 2030 makes use of well-comparable cases as well as being feasible from language and accessibility perspectives. Given that I study two decision-making processes for each of the 16 *Länder* – one for road projects and one for rail projects – this results in 32 decision-making cases used for analysis.

Thus, I study instances from the universe of cases of intra-ministerial decision-making processes. The broadest-possible potential of generalisation would therefore be to all other instances of intra-ministerial decision-making. This optimistic perspective has to be qualified to a certain extent, and this is a clear downside of my case selection: I study a very specific policy within a particular polity. Both require particular attention to differentiating which findings might be specific to content, time and place of the cases studies, and which address more general patterns that can plausibly be expected to also hold under different circumstances. Policy-wise, the choice of cases makes generalisability most likely for other instances of ministerial decision-making in the context of infrastructure planning. Geographically, generalisability seems most adequate to decision-making instances in Germany as well as other countries with similar administrative profiles. I will come back to the generalisability of the analysis in the discussion in chapter 7.

² The BVWP also includes projects for waterways. These are disregarded here as I explain in chapter 4. Neither air transport nor bicycle lanes are part of the BVWP.

Data on the decision-making processes about road and railway projects to be proposed for the BVWP 2030 has been collected in form of documents and expert interviews and then analysed by ways of content analysis and QCA. The remainder of this chapter describes how this was done and introduces the fundamentals of the respective methods.

3.2 Data collection

Diverse sources in the form of published and unpublished documents, websites, as well as expert interviews have been collected for this study. They were used to reconstruct the decision-making processes for the derivation of lists of proposals for road and rail projects by the *Länder*, to grasp political positions towards infrastructure planning, and to understand the overall framework. The material thus provides a rich stock of observations on the cases of intra-ministerial decision-making. One piece of material can in principle contain observations on more than one case as well as containing several observations. Table 3.1 lists the various kinds of sources with some examples of questions the respective material was used to answer. These answers can then be understood as observations made from the respective material.

For each *Land* a number of documents has been considered in addition to at least one instance of communication with officials from the respective transport ministry. A minimum of four documents was assembled for the Saarland, the maximum of twelve documents was collected for Hamburg and Nordrhein-Westfalen. I will elaborate on that in the next section. A list of all 159 documents considered is put together in appendix A.

In addition to these documents, 40 persons from *Land* ministries and subordinate bodies have provided me with verbal or written information. There were 23 face-to-face interviews, four long telephone calls, and three more contacts have responded via e-mail. Most interviews have been audio-recorded, for a few, a written record was prepared. Table B.1 in appendix B differentiates the numbers according to interview mode and form of documentation. Audio-recorded interviews have been transcribed using the softwares *easytranscript* and *Dragon Professional* (E. John 2014; Nuance Communications 2016).

In order to ensure the anonymity of those interviewed – or otherwise contacted –, statements will either be referenced according to the respective *Land* and with a number – e.g. BY-02 for an interview from Bayern – or with a random number from 1 to 40 assigned to each interview. Thus, for each interview there are two codes available that can be used interchangeably relative to the sensitivity of the respective quote. I will use the second approach – number from 1 to 40 – especially when discussing relations between the federal and the *Land* level. Here, it is usually not relevant for the argument, in which exact *Land* the respondent is situated, and these were also the issues where the importance of anonymity was emphasised the strongest by the interviewees. Thus,

Table 3.1: Source types and possible questions to the material

Source type	Questions to answer
documents and websites by the federal ministry of transport and other federal institutions	What was the overall framework of BVWP preparation?
documents by the <i>Länder</i> parliaments (e. g. questions by members of the <i>Landtag</i> and the answers by the respective government, plenary protocols, in some <i>Länder</i> also committee protocols)	How did the <i>Land</i> go about choosing its proposed projects for the BVWP? To what extent was the parliament involved in the process?
websites of <i>Länder</i> ministries for transport	Which projects did the respective <i>Land</i> propose? What information is available on public participation procedures?
expert interviews with ministerial bureaucrats of these ministries and subordinate authorities	Why were some projects chosen rather than others? Which administrative capacity was available for this process?
additional documents provided by interviewees (e. g. protocols, schedules, presentations)	What was the timeline of BVWP preparation in the respective <i>Land</i> ?
<i>Land</i> election manifestos of transport ministers' parties and <i>Land</i> coalition agreements	Does the <i>Land</i> minister's party hold a positive view on a transport transition? How important is the topic of long-distance infrastructure policy for the <i>Land</i> minister's party as well as the governing coalition?
reports by NGOs	To what extent did the <i>Länder</i> engage the public when choosing projects to propose for the BVWP?

allowing those cited to 'hide' in a bigger group seems advisable, as the identity of some of my respondents would otherwise be easily guessable for anyone in the field especially when it comes to the smaller *Länder*. In case of doubt as to whether a quote was sensitive or not, I opted for the second approach as well.

The following two sections explain the collection process of documents and reflect on the conduct of expert interviews.

3.2.1 Documents

Documents are a valuable source for reconstructing processes as they are storable as well as non-reactive. While a prospective interviewee might be unavailable or have a bad day, a committee protocol neither has conflicting meetings nor will its content be dependent on the day of reading it. What is more, unlike the human mind, document content will

also not change over time – hence the importance of official documentation in administrations.

Documents, in the context of this thesis, will be understood as containers of information using some visual type of representation (Grant 2018, p. 11), usually text (Salheiser 2014, p. 813). This is not to deny the existence of audio documents and haptic documents, of course, which just happen to be not relevant for this research undertaking. From each document one or several observations can be gained. Usually these relate to one case of ministerial decision-making but might also relate to the two cases from the same *Land*, or to instances of ministerial decision-making in more than one *Land*.

The documents used for this study are ‘found’ documents (Grant 2018, pp. 16–17), thus a subset of the group of ‘natural data’ that is ‘process-produced’ (Salheiser 2014, p. 813). Thus, they were not exclusively prepared for the aims of scientific research (Salheiser 2014, pp. 813–814). Instead, they had been produced as parts of parliamentary processes, as working material within ministries, or as information material for third actors. In the context of this research endeavour this grants them special credibility as any bias in the content induced by the data collection process is precluded from the outset (Salheiser 2014, p. 816). This is certainly not to say that documents were neutral presenters of the world, they were of course shaped by the roles and understandings of those producing them.

Documents might confront the researcher with a couple of problems, that can however be mitigated. As Grant (2018) points out, found – and especially official – documents as a source might suffer from uncertainty about who exactly wrote them, tight coupling to norms and values present at the respective time, misleading language, as well as restricted access (Grant 2018, p. 62; similar: Salheiser 2014, pp. 816–822). Authorship is unproblematic in my case as I am not interested in individual-level data, so that a broad organisational authorship – or at least ownership – is sufficient. Norms and values as well as language are counterbalanced by using expert interviews as a second type of source, so that misunderstandings can be revealed (Salheiser 2014, p. 817). The same interviews also served as a door-opener to some unpublished documents. Overall, there is no reason to assume systematic misrepresentation in the documents studied with regard to the BVWP process.

To an overwhelming extent the documents considered are official documents from ministries and parliaments. Additional documents from ministries are working documents and therefore process-produced. Documents by parties form another important sub-group. Further documents are reports by NGOs and expert assessments by engineering firms or research centres. The analytical focus clearly lies on the ministerial and parliamentary documents. Party documents are used to assess parties’ positions. The remaining documents are auxiliary only. Thus, the reconstruction of the BVWP process is

undertaken on the basis of documents that were produced within the process of choosing the projects for the BVWP or in the political process accompanying this stage of decision-making. In the former case, credibility of these documents can be ranked very high. In the latter case, some consideration of eventual political window dressing on the one hand or intentional doom-mongering on the other hand is advisable. However, as the collected material suggests, especially in the relations between parliaments and ministries, the more frequent tactic employed by the latter is answering questions as briefly as possible, giving away the absolute minimum of information required. Consequently, what information is provided can be supposed to be correct as of the time of production of the respective document. As the process in question lasted several years, not all statements from the earlier years will hold true through the entire process. Therefore, cross-checking with later sources is required for documents that have been produced early-on in the process.

Most documents collected have been obtained via targeted online searches. Ministry websites, parliamentary databases, as well as the database of the Conference of *Länder* Ministers of Transport (*Verkehrsministerkonferenz*, VMK) have been scrutinised for the search terms *Bundesverkehrswegeplan* and *BVWP*. The resulting pages and documents have been scanned for their relevance. Relevant documents and websites have then been saved for later analysis – e. g. from the initially more than 40 search results in the database of the VMK only two have been used for further analysis.

A further source of documents have been interviews and e-mail communication with the *Länder* ministries of transport. At times, interviewees did mention documents that had been relevant in the process of BVWP preparation. Some of these documents were publicly available online, so I could retrieve them – often these were analyses or expert assessments. In other cases, interviewees were kind enough to provide me also with unpublished documents under the condition of their confidential treatment. The latter ranged from slides used in meetings to internal schedules. In cases where no lists of proposed projects were available on the respective ministry's website, I contacted the ministry via e-mail and asked which projects had been proposed. In all cases, I received the respective lists – often kindly supplemented by additional explanatory material.

A small but still relevant third part of the document collection added a few miscellaneous sources. On the one hand, I followed a snowball approach from hints in the literature or other documents. On the other hand, at some points I did a general web search with various search terms added to *Bundesverkehrswegeplan* or *BVWP* plus the name of the respective *Land* to ascertain a particular information for one *Land* or the other – e. g. in the case of Sachsen, interviews and parliamentary documents were contradictory about the use of public participation, and so it was reassuring to actually find a docu-

ment by an association who claims to indeed have taken part in public participation for BVWP project choice (IHK Chemnitz 2014).

The timing of document collection was coupled to the conduct and analysis of the interviews. Parliamentary documents were usually collected and studied before the interview in the respective *Land* took place, the same holds for material that interviewees sent me in advance or pointed out when agreeing to be interviewed. These materials formed part of the preparation process of the interviews that I will explain below in the section on interviews. Other documents, as mentioned above, have been retrieved as result of the interviews. Further documents have been collected when transcribing the interviews or during a first round of analysis, when gaps or inconsistencies appeared in the knowledge so far attained. During later stages of the analysis, new documents were added when crucial points would so far only come up in the interviews and official documentation of that point – confirming or disconfirming it – was likely to exist. The collection process thus spans a period from mid-2018 to end-2020.

The amount of documents collected differs for the *Länder*. This is mainly due to differences in document availability by ministries and parliaments. On the side of ministries, some *Länder* have published a range of documents related to the BVWP process on their websites (e. g. Baden-Württemberg) and also produced more documents during the process e. g. by holding presentations for the public (e. g. in Brandenburg) or by providing minutes from public consultation meetings (e. g. in Niedersachsen). On the parliamentary side, the *Länder* parliaments asked about the BVWP to varying extents. The number of parliamentary questions ranges from one (e. g. in the Saarland) to four (e. g. in Thüringen). What is more, parliamentary documents are not equally publicly available in the *Länder*. While questions and plenary protocols are generally available, this is not equally true for minutes from committees. In *Länder* where the latter are available in the respective database, they add to the number of documents (e. g. in Nordrhein-Westfalen). Finally, only few plenaries discussed the BVWP proposal stage thereby adding another document to the list (e. g. in Rheinland-Pfalz).

These different numbers of documents, even though striking, are no source of concern for the analysis. These numbers alone allow no conclusion about how informative these documents are. Thus, the diverging numbers do not represent different levels of information on the *Länder*. By combining interviews and documents, an at least satisfactory level of information saturation could be reached for all *Länder*.

3.2.2 Expert interviews

Interviews are a valuable source for reconstructing processes as they are able to open up information that has not been written down or where such documentation is not publicly available. While a parliamentary document might sum up proceedings in hindsight, an

interviewee might also recall the back-and-forth that led up to it. What is more, unlike a written protocol, a person can answer follow-up questions and therefore provide context – hence the importance of far-sighted human resource planning with settling-in periods in organisations.

In order to reconstruct the decision-making process about project proposals by the *Länder*, I supplemented the collection of documents with expert interviews in all 16 *Länder* about both the project choice for road as well as for railway projects. I spoke to members of the respective ministerial bureaucracy and of subordinate authorities. This approach followed from the dominance of the executive in preparing the BVWP and the lack of general public documentation of the process. Each interview is a source of a multitude of observations on the respective ministerial decision-making process or on several decision-making processes.

I conducted semi-structured interviews. This means that the interviewer pre-defines certain areas of interest with a topic guide but leaves plenty of room for the interviewees to expand on these topics or also point to other relevant aspects (Meuser and Nagel 2002, p. 77; Helfferich 2014, p. 560). This is the usual interview form for expert interviews, as it allows a certain thematic guidance of the interview while still granting sufficient opportunity for unexpected input (Gläser and Laudel 2010, pp. 111, 116).

In my case, the topic guide foresaw four thematic blocks plus an introductory and a concluding part. Table 3.2 on the next page gives a brief overview. The complete topic guide in German language is reproduced in appendix B.2. In the introductory part I introduced myself and my research topic, and I ascertained that the formal information I had about the respective interviewee's affiliation and position were correct. At this point I also asked whether they had personally been involved in the decision-making process about the project proposals. At the heart of the main part of the interview was a relatively wide first question (Helfferich 2014, p. 566). Here, I simply asked for a description of the entire process as it had been carried through in the respective *Land*. This type of question is referred to as 'grand tour question' in the literature (Leech 2002, p. 667). Depending on the depth and detail of the answer, many other questions could already be obsolete by then. Much of the remainder of the interview built upon this first (and usually long) answer (Helfferich 2014, p. 566). Prompts served to deepen aspects that had been touched upon before (Leech 2002, pp. 667–668), e. g. 'How was that with [the aforementioned] online participation [...]? What did that look like [...]?' (question in interview 29). I adapted the order of the questions flexibly to the communication flow, it was therefore not the same in all interviews, even though the topic guide followed a certain chronology (Gläser and Laudel 2010, pp. 42, 146). I would address yet untouched parts of the topic guide only after that in order not to disrupt the communicative flow (Helfferich 2014, p. 566). Hence, the interview had the quite common structure of expert

interviews in combining simply asking for facts with narrative episodes (Blatter, Janning et al. 2007, p. 62). The concluding part asked for an overall assessment as well as leaving room for additional aspects.

Table 3.2: Overview over the structure of the topic guide

Bloc	Aim	Example question
Introduction	Briefly presenting the topic; information on interviewees	'To what extent have you been involved in decision-making about which projects to propose for the BVWP?'
Process	Acquiring an overview over the decision-making process	'Could you describe how the decision-making process about projects to propose for the BVWP took place in (<i>Land</i>) from your point of view?'
Criteria	Clarifying the underlying criteria for decision-making	'What was decisive for the decision to propose a project or not?'
Information base	Gauging the information base available for decision-making	'Who provided the respective information?'
Resources	Understanding the relation between effort and available resources	'Compared to day-to-day operations, how much effort do the project proposals cause?'
Conclusion	Rounding off	'Would there be anything else that you think should be mentioned?'

Good preparation is emphasised as a prerequisite for insightful interviews. The interviewer ought to gain as much knowledge as possible about the topic of the interview beforehand in order to avoid asking questions whose answers could have been known from other sources (Leech 2002, p. 666; Helfferich 2014, p. 572). Accordingly, I did the document collection for the respective *Land* in preparation for the expert interview in that *Land*. In consequence, I would often change some questions and adapt them to *Land*-specific aspects – e. g. using projects as examples that had been the subject of parliamentary inquiries, or asking for details when a public participation process had been set up, thus tailoring the topic guide to the specific interview (Gläser and Laudel 2010, pp. 150–151). Where e-mail contact existed, i. e. in most cases, I sent out a list of my main questions beforehand, which proved very valuable as some interviewees apparently used these questions to specifically dig into documents and material in preparation. Sometimes interviewees also requested a list of my questions beforehand which is not unusual for expert interviews (Helfferich 2014, p. 572).

Expert interviews are set apart from other interview forms by their interviewees (Helfferich 2014, p. 559; Przyborski and Wohlrab-Sahr 2014, p. 118; Kruse 2015, p. 166; however, for a divergent reflection see Pfadenhauer 2009). Expert interviews are conducted with persons that are ascribed the role of someone with specialised – insider – know-

ledge with regard to a certain topic (Meuser and Nagel 2002, pp. 73–74; Kaiser 2014, pp. 35–41; Przyborski and Wohlrab-Sahr 2014, p. 119). As a result, the expert is not interviewed with regard to their overall personality, but only in their capacity of fulfilling a certain role, usually in an organisation (Meuser and Nagel 2002, pp. 72–73; Helfferich 2014, p. 570; Kruse 2015, p. 166). It is the aim of an expert interview to collect and understand otherwise not available knowledge (Helfferich 2014; Kaiser 2014, p. 31), especially when targeted at procedural knowledge that is usually not documented (Przyborski and Wohlrab-Sahr 2014, pp. 119–120). In my specific case, the interviews correspond to the type of ‘systematizing expert interview’, that aims at accessing the special knowledge of the expert along largely pre-defined topics (Bogner and Menz 2009, p. 46).

My choice of interviewees follows from the strong role of *Land* ministries in preparing the BVWP project proposals. I sought to talk to persons who had been involved in the respective decision-making process on which projects to propose for road and railway. These were usually persons from the respective *Land* ministry divisions but also from subordinate bodies. I interviewed heads or clerks of sections responsible for rail infrastructure, long-distance road planning/construction or transport policy/basic issues of transportation who have been in office either at the time of the interview or while BVWP projects had been chosen and prepared. This echoes the statement by Meuser and Nagel (2002) that experts were often not found at the very top of an organisation, but one or two levels below (Meuser and Nagel 2002, p. 74). Additionally, one interview was conducted at the BMVI in order to grasp the federal perspective, however, it appeared that this was not relevant for the research question at hand and therefore not pursued further. In each *Land*, a minimum of two interviews was intended, one for the road sector and one for the rail sector. This initial plan of conducting separate interviews for the two transport modes was actually realised in a slim majority of cases. In some *Länder*, all interviewees would be assembled during a single interview appointment, while in few other ones only one person would speak for both transport modes.

Accessing suitable interviewees was a communicative process of at times some length. To some interviewees, contact had already been established via document requests before. In all other cases, usually the head of the respective organisational unit was contacted via e-mail. In case of no response, a follow-up e-mail and/or phone call was sent out.³ The time from first contact to agreeing on an interview date could take everything from a couple of hours to several months. The reason why an e-mail was chosen for the first contact was twofold: First, the university e-mail address and signature helps to avoid

³ E-mail addresses were either published on the ministry’s website or could be guessed from the organisation chart. The latter provided at least the ministry domain, so that the e-mail address could then be completed to *firstname.lastname@[ministry domain].de*, which worked in almost all cases. The first and last name of the respective person was taken either directly from the organisation chart or from a web search. Telephone numbers are usually published on the organisation charts.

being mistaken as a journalist. Second, the e-mail allowed me to introduce my research interest briefly but with sufficient precision. In the rare cases where I had to first explain my research interest on the phone, respondents were quick to tell me that I rather ought to talk to someone on the federal level as soon as they heard the buzzword *Bundesverkehrswegeplan*. It was my impression that an e-mail approach pre-empted such misapprehensions. The actual interview appointment was then either agreed on via e-mail or during a phone call, sometimes with the interviewees themselves, sometimes with very friendly secretaries.

Most interviews could be conducted face-to-face between December 2018 and December 2019 – thus, luckily, well before the Covid19 pandemic hit in early 2020. This is the most desirable mode of interviewing. Telephone interviews as the main alternative suffer from comparably higher cognitive strain on both sides as well as from an enhanced risk of misunderstandings (Christmann 2009, pp. 167, 176; Gläser and Laudel 2010, pp. 153–154). The majority of the interviews took place in offices or conference rooms in the respective ministry building. One interview was conducted in a restaurant close to the ministry. Telephone interviews were done from my office in Göttingen. Often it was possible to interview experts for both the road- and the rail-related process during one stay in the respective *Land* capital, at times a second journey was needed – e. g. I went twice to Schleswig-Holstein (July and October 2019) and to Brandenburg (June and July 2019). Interview stays in neighbouring *Länder* were combined if possible – e. g. Bayern, Baden-Württemberg, Rheinland-Pfalz, and Hessen were part of one round-trip in March 2019. Journeys were made by train, resulting in more than 9,500 train kilometres travelled.⁴

The interview situation as such was usually formal but friendly. I aimed for a rather conversational style of communication with the topic guide serving as a reminder of points to consider rather than a rigid structure (Meuser and Nagel 2002, p. 78). On the side of the interviewees, there was a great openness and readiness to expand on unclear aspects and give explanations. I was impressed by the remarkable preparatory work that some interviewees obviously had engaged in prior to the interview. Time-constraints were surprisingly seldom – even though ‘expert time [is] costly’ (own translation, Helfferich 2014, p. 572). Interviews lasted between 45 and 120 minutes. After the experience with the first couple of interviews, I had generally asked for about 90 minutes time which was never rejected as too long, and some interviews even went beyond that.

As already indicated above, quite some of my interviews diverged from the recommendation that expert interviews ought to be individual interviews (Gläser and Laudel 2010, p. 43). From the fourth interview onwards I learned, that I would often not know in advance how many interviewees I would be meeting. Sometimes I was informed in advance how many colleagues would join for the interview, sometimes I expected one

⁴ Calculations are based on <http://brouter.de/brouter-web/>.

and met two, or expected two and met three. Three was however the maximum number of interviewees during one meeting, which then covered both the road-related and the rail-related process. These double interviews of road and rail in one meeting had their challenges as regularly one interviewee would have to sit and wait while the other one explained. So, I tried to steer the interview along some common themes that allowed addressing the interviewees in turns rather than having the full rail-story first and the full road-story second or the other way around. This latter variant still happened at times when one interviewee was under more time pressure than the other(s).

Time was problematic for a reason related to the policy studied. Some time has passed since the BVWP process, which began in 2010 and ended in 2016. In the meantime, some formerly involved persons have moved out of the respective ministry or retired. Their successors who had not themselves witnessed the BVWP process themselves usually still could answer my questions on the basis of internal documents and information gathered from other colleagues. Still, in a few cases, the absence of the then-responsible person was indeed a setback. However, even for interviewees who knew the process from their own work, recalling it was not always easy. As one interviewee put it: ‘Do you still know what you did six years ago?’ (interview 39) In such cases, one advantage of semi-structured interviews of a certain length took effect: ‘Now as we talk, it is amazing what comes back to mind’, another interviewee remarked (interview 11). In this regard, it was also helpful to have more than one interviewee present, as often a certain discussion unfolded that allowed the participants to jointly reconstruct the process and fill in details that one interviewee had left out or forgotten – preferably on the basis of notes and papers (Gläser and Laudel 2010, pp. 168–169). Still, in such cases it was especially important for me to cross-check information with available documents.

My own position – topic-wise as well as geographically speaking – was, of course, something I carried with me (Przyborski and Wohlrab-Sahr 2014, p. 44). I will briefly discuss two aspects of positionality that relate to the research topic as such, and to geographical relations. In this context, I will outline as well why I believe that these aspects did not, as far as I can tell, disturb the interview process.

From my research interest and case chosen it follows that I ascribe relevance to the topic of how to achieve a transport-transition and the associated re-balancing of different transport modes. Despite being by-and-large consensus within the sustainability research community, the desirability of such a transition and a modal shift are much less consensus outside sustainability research. This had the potential to result in frictions during the interviews. However, this was mitigated rather easily. By focussing the interview on the procedural aspects of project choice, the rather politicised topic of transport transition did not feature in the interviews unless the interviewees brought it up themselves, and then I did not comment on it – which fits precisely with the methodological

consideration that too much information on the research topic might distort the interview altogether (Przyborski and Wohlrab-Sahr 2014, p. 44). As a minor further aspect, being a train user, I have much more experience on the rail network than on the road network. Still, the planning frameworks for both modes are far enough removed from everyday experience, so that would not make any difference. Interestingly enough, often interviewees just seemed to assume anyway that I was most attached to whichever transport mode the interview just focussed on – sometimes even after I had affirmed the contrary.

The second aspect of positionality that I want to outline are geographical relations, and this might be particularly relevant for transport-related questions: Everyone comes from somewhere, has lived somewhere and therefore knows some roads and railway lines more than others. This introduced varying degrees of ‘foreignness’ in the interviews (Helffferich 2014, p. 564). I did not actively tell my interviewees before, when I had any geographical relation to their *Land*, which at times led to an almost indignant ‘You could have said so!’ during the small talk after the interview. However, I consciously held that back until the end of the interview in order to avoid the assumption of knowledge on my side and in order not to introduce artificial differences between the interviews. Only one interviewee let know that they had googled me before and knew that I had a relation to the *Land*, and for the interviewees in Niedersachsen my geographical relation to their *Land* was of course obvious from the Göttingen university e-mail address. Thankfully, the ‘Of course you will know ...’ was nevertheless extremely limited.

Trust is an essential prerequisite for a successful interview (Leech 2002, p. 665). Being there in person certainly helped, and travelling up to five hours to and from the interview probably also communicated a certain dedication – this is in line with impressions from the literature that face-to-face interviews are treated more seriously than other interview forms by interviewees (Christmann 2009, p. 169). Even though my research interest is not as such sensitive and my interviewees are no particularly vulnerable group, maintaining a certain level of confidentiality was important. Some interviewees were hesitant about having the interview recorded, some also citing bad experience with recordings. The huge benefit of recording an interview, was that it allowed me to concentrate on the interview rather than on note-taking, and that it precluded premature omissions while note-taking (Gläser and Laudel 2010, pp. 157–158; Harvey 2011, p. 436). Almost all interviewees were open to this explanation. With some that had reservations about the recording, I agreed to have them see through the transcript and delete the audio file afterwards. Others requested to double-check the parts of the interview that I would end up using in my thesis. This, of course, had the double benefit for me to obtain again specifications of certain points and clarification of potentially misleading passages.

The documentation of the interviews involves audio as well as written formats. In the best case, interviews could be audio recorded. A dictation device was used for this that allowed copying the audio files to a hard drive via USB – thus avoiding data protection issues with e.g. cloud storage (Blatter, Langer et al. 2018, p. 67). In cases, where the interviewees did not agree to audio recording, I took detailed notes during the interview. Even when audio recording, I still took notes after the interview to summarise my overall impression and potential problems (Gläser and Laudel 2010, p. 192). All notes were typed out after the interviews. I transcribed all audio files completely in order to avoid premature omission of information before the analysis (Gläser and Laudel 2010, p. 193). I prepared a verbatim transcription focussing on the verbal component and using standard orthography, thus preserving the spoken word but ignoring dialect, fillers, repetitions of single words etc. (Meuser and Nagel 2002, p. 83; Kowal and O’Connell 2014, pp. 70–71). Given the focus on the manifest content of the interviews, this form of transcription is sufficient when dealing with expert interviews (Blatter, Langer et al. 2018, p. 73). Other elements like laughing and hesitation were only noted, when they changed the meaning of a statement (Gläser and Laudel 2010, p. 194). Where it had been agreed that interviewees would check the transcript beforehand, the transcript was edited somewhat more to be closer to expectations of written language. This was done in order to diminish the confusion from reading one’s own spoken words written down – even though the origin in spoken language would still be visible. The same is true for passages used for direct quotes in the analysis. These are always as close as possible to the spoken original but smoothed for readability. Thus, while the content is of course preserved, orthography and sentence structures are adapted slightly in the transformation from spoken to written language. This both helps the analysis in making the material easier to read, and, hopefully, does justice to the interviewees. As the focus of the analysis is on the factual account of events this compromise seems adequate.

The benefit of the interviews for the overall project lies in opening up non-written knowledge for the analysis. Interviews carry with them the risk of slips of memory, interpretation in hindsight, or misunderstandings in communication, and therefore ought to be complemented by additional sources – documents in my case (Abels and Behrens 2002, p. 173). Still, they remain the prime way to access procedural knowledge that involves informal parts of the process as well as the perceptions of those involved.

The interviews additionally helped me to avoid misleading interpretations of some of the available documents. The case of Hamburg is a point here. In the case of Hamburg, the possibility to conduct a meaningful interview was restricted by the law for transparency, which mandates that all work and processes leading up to a government decision are not to be made available to third parties (§ 6 HmbTG). The same law however implies that a wealth of material is available, and the interview aided me in understanding

some of this material better and also informed my search strategy. Thus, the use of an interview goes well beyond the information directly shared in it.

The following part of the chapter outlines how the collected material was subsequently analysed.

3.3 Modes of analysis

The analysis of intra-ministerial decision-making in *Land* ministries leading up to the BVWP 2030 will proceed in two steps:

The first step is a qualitative content analysis of documents and interviews with the aim to gain an overview of relevant categories and the variety in the material. The goal of that step is a categorisation of the observations made from the material. Thus, the content analysis provides the basis for a comparison between the *Länder*. This information can then inform the second analytical step. The content analysis is technically aided by using the software *MAXQDA* (VERBI Software 2018).

The second step is a Qualitative Comparative Analysis (QCA), thus a formal analysis of necessary and sufficient conditions leading to a given outcome. The outcomes of interest are, first, whether a ministry has opted for a complex decision-making process, and second, whether the output produced can be deemed oriented towards a transport transition. Technically, the QCA is done using the softwares *R* and *R Studio* with the package *SetMethods* (R Core Team 2020; RStudio Team 2020; Oana and C. Q. Schneider 2018).

Figure 3.1 on the following page illustrates how the second analytical step builds upon the first one. The following two sections will introduce the two analytical methods employed.

3.3.1 Content analysis

The first step of the analysis is a qualitative content analysis. This, on the one hand, serves to gain a systematic overview over the collected material, and on the other hand, prepares the ground for a sound calibration of the explanatory conditions later used in the QCA.

Content analysis is one of the most common research methods in the Social Sciences (Blatter, Langer et al. 2018, p. 115). It is suitable for extracting such passages from different kinds of textual data that promise relevant information for the research question at hand (Blatter, Janning et al. 2007, pp. 75–76). It thus reduces the material to those observations that are relevant for answering the research question and structures it accordingly (Gläser and Laudel 2010, p. 200; Blatter, Langer et al. 2018, pp. 115–116). The central means for structuring the material are categories as conceptual containers for thematic-

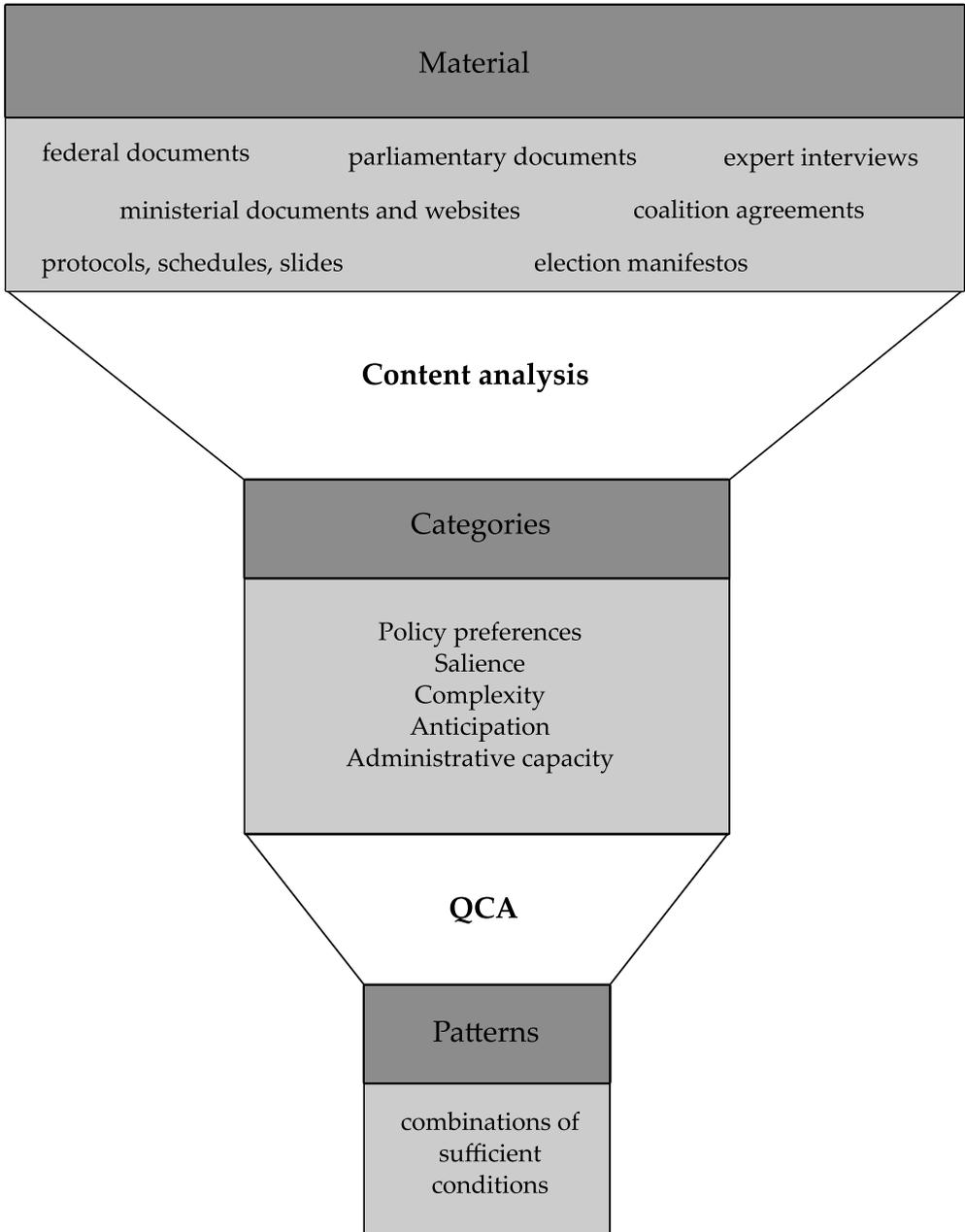


Figure 3.1: Structure of the analysis

ally related bits of information (Blatter, Langer et al. 2018, p. 116). Content analysis is regarded as less interpretive than other qualitative methods, however, the sorting of the material into categories and the construction of the categories themselves are necessarily acts of interpretation (Blatter, Langer et al. 2018, p. 116).

The first analytical step thus is a reduction of the textual material to its core messages in an attempt to reconstruct the decision-making processes in terms of steps taken and actors involved as well as the perspectives of collective actors (parties, ministries) on these processes. The aim of this step is to summarise the material in a structured manner and 'condense' its 'manifest content' regarding statements relating to the research question (Blatter, Langer et al. 2018, p. 115). This is equivalent to the approach of a structuring content analysis (Mayring and Fenzl 2014, p. 548; Blatter, Langer et al. 2018, p. 119). I depart from Mayring's approach in that I do not attempt to quantify the categories developed within one case and stay with the qualitative-interpretative first step (Mayring and Fenzl 2014, p. 543), thus avoiding the critique of losing sensitivity to context in the content analysis (Blatter, Langer et al. 2018, p. 120). The interpretative approach bears resemblance to Thematic Analysis (Neuendorf 2019, p. 212). Both approaches concur in the use of codes as short descriptions of relevant bits of information in text and other material (Neuendorf 2019, p. 211). However, Thematic Analysis is more focussed on capturing perception and experience – which is not the aim in my case. Gläser and Laudel (2010) have put forward a variant of content analysis explicitly aimed at the interpretation of expert interviews (Gläser and Laudel 2010, ch. 5). They retain the techniques proposed for a structuring content analysis by Mayring, but aim for a greater openness of the method for new findings from every part of the material (Gläser and Laudel 2010, p. 199). In principle, I follow their approach, though with a different technical implementation.

The material for my content analysis comprises the entirety of the collected documents and interviews. Thus, even though there are two analytical steps, the empirical material is not divided between these two steps. Rather does the first step take in the entire material in order to condense it for the second step – which is also not unusual as a strategy (Blatter, Langer et al. 2018, p. 117).

For structuring and coding the material, the software MAXQDA is used (VERBI Software 2018). MAXQDA – as other qualitative data analysis software – allows the construction and changing of coding schemes, coding of material (text, picture, audio) by creating links between e.g. text passages and a pre-defined code, re-coding, as well as re-organisation of codes, and can cope with a variety of file types (Kuckartz and Rädiker 2019, pp. 3–5). There are numerous tools for graphical or table analysis within MAXQDA itself, however, these are unsuitable for this project. The relevant features of MAXQDA for my content analysis were the possibility to:

- create a code system
- put tags on documents (called 'document variables' in MAXQDA), e. g. to differentiate interviews, parliamentary documents, manifestos etc.
- code material on the basis of my code system
- auto-code material on the basis of search terms, e. g. code all sentences with the word *Verkehrsverbund* (regional transport association) with a new code
- retrieve coded text passages, e. g. producing a list of all text passages coded with EXTERNAL ACTORS » PUBLIC
- add notes (so-called memos) to codes and documents in order to add explanations, thoughts, or remarks, e. g. reminding myself of contradictions between documents

The analysis proceeds by partly filling pre-formulated categories in a deductive manner, while enriching these categories with inductive reasoning – which is also a widespread practice for structured content analyses (Kuckartz 2014, p. 77). For the categorization of the material I start from a few preconceived categories that are based on the theoretical framework and general knowledge on decision-making processes in ministries. In particular, the four factors – minister's position, salience, process characteristics, capacity – identified in the theory section work as starting categories. The very broad starting categories are then specified inductively by 'subsumption', thus extracting new subcategories from the material itself whenever an encountered concept does not fit any subcode so far developed (Schreier 2014, p. 176). The usefulness of these new categories is assessed according to whether or not they allow structuring the remaining material. When a category does appear useful it is captured with a code and an 'anchoring example' (Mayring 2015, p. 97) in order to inform a systematic analysis of the material. While this approach is congruent with the first steps described by Mayring and Fenzl (2014, p. 547), the steps are also very similar to those of Thematic Analysis as described by Neuendorf (2019, p. 213).

The coding scheme thus is as much an instrument of analysis as it is a result (Gläser and Laudel 2010, pp. 201, 205). In my case, a round of pre-analysis of the still incomplete material – not all interviews and therefore also not all documents were in place at that time – quickly flooded the initial categories with highly detailed subcodes inductively drawn from the material. A first round of analysis of the entire material added even more detail in order to remain as true as possible to the cases until a point of 'saturation' is reached (Schreier 2014, p. 176). This encompassing coding scheme is provided in appendix B.3. A second round of scrutinising interviews and documents then led to the reduction of the amount of different codes by putting aside those that described idiosyncrasies and by matching codes that at second glance were related to the same phenomenon (Schreier 2014, pp. 177–178). The resulting individual codes and subcodes will be presented in the analysis chapter. The seven main categories are:

- Party position as revealed in the respective election manifesto
- Salience of the topic
- Political influence in the process
- Internal rules for decision-making
- Involvement of external actors
- Relations between the federal levels
- Administrative capacity

As a first step, those parts of the material are identified that are relevant for the analysis (Gläser and Laudel 2010, p. 200). By including such an extractive step, the approach by Gläser and Laudel (2010) differs from other content analytical approaches that demand coding the entire material (Kuckartz 2014, pp. 60, 76–77). Given the aim of reconstruction in my analysis, focussing only on relevant information seems plausible. Passages of the material relating to the respective starting category are coded accordingly – instead of actually ‘extracting’ those relevant passages in a first step (Gläser and Laudel 2010, pp. 201–202), I use such higher-level codes to identify the parts of the material for further scrutiny. This has the advantage that the connection to the original source can never be lost (explicitly problematised in: Gläser and Laudel 2010, p. 201). Coding units were statements that would usually comprise at least one sentence, in some cases also half-sentences. The maximum amount of text coded together would be an entire answer to an interview question or parliamentary question or a paragraph in any other document.

As an analytical step between categorisation of relevant passages (or ‘extraction’, as they call it) and interpretation Gläser and Laudel (2010) propose a preparatory interplay that consists of error correction, summarising synonymous information, and distinguishing different information (Gläser and Laudel 2010, pp. 229–230). Correcting mistakes is, of course, a sensitive affair and presupposes certainty about what is correct. Rather than correcting anything, I made use of memos as small analysis notes that I attached to the text passage in question (Kuckartz 2014, pp. 54–55), noting when certain assertions seemed dubious in light of other information or when the respective information might have become obsolete or incorrect over time. In order to summarise and distinguish information per case, a table was prepared listing the most expressive text passages and sources for every subcode and case. This ‘profile matrix’ (Kuckartz 2014, pp. 73–74) in the same time directed attention to cases where the base for interpretation was still thin and required another round of scrutiny of the respective material.

For the interpretation of the coded material, there are no general guidelines available (Gläser and Laudel 2010, pp. 246–247). Bearing in mind, that the content analysis will ultimately inform the second step of the analysis, the QCA, my analysis of the coded material follows two sub-questions: What variations in ministerial decision-making processes are discernible? Where is an effect on the output plausible? The first question requires

comparing codes across cases. In the analysis chapter, I discuss all codes with respect to the variation within the cases. Besides describing the existing variation among the cases, an aim of this step is also to identify those codes where no variation can be discerned – these codes are then not relevant for the further analysis and do not have to be taken into account for the QCA. To give an example, a dialogue model between political and administrative actors (Mayntz and Scharpf 1975, pp. 100–102) appeared to be so pervasive that it has no potential to explain differences between the cases. The second question requires linking codes to context and asks for possible effects of a certain coded phenomenon. If no plausible impact on the output can be discerned, the respective code is again irrelevant and will not be taken into account for the QCA. An example is the perception of transparency of higher-level decision-making – while there is some variation among the cases, no plausible link to the output produced could be established. Hence, perceived transparency is not included in the QCA.

The analysis aims at reconstructing the intra-ministerial decision-making process enriched by perceptions of the actors concerned as regards e. g. relations between the levels, administrative orientations, or political influence. Thus, I am interested in manifest content of the spoken and written word, much less in latent meanings – in that I follow the typical understanding of content analysis (Blatter, Langer et al. 2018, p. 115). From the aim of reconstruction it follows why no quantification of categories is aimed at – no matter how often an interviewee spoke about public participation, it will only have taken place once (or not at all). Quantification could, if anything, contribute a sense of the importance of a category for the person speaking or the institution writing. However, in both cases, this quantity would be co-determined by questions asked (in the case of interviews as well as parliamentary questions) or political tasks formulated (in case of ministry documents). Either way, the aim of research in the present case warrants a qualitative but no quantitative assessment of the categories derived.

With the knowledge gained through the content analysis the way is paved for a systematic search for explanatory patterns. This is done in the second analytical step by making use of QCA. The next section presents the fundamentals of this method and introduces the analytical strategy pursued in the second part of the analysis.

3.3.2 QCA

The second analytical step is a Qualitative Comparative Analysis (QCA). Building on the findings from the first step, it systematises these findings further and condenses them into more general statements that can then be checked against the theoretical expectations formulated.

Qualitative Comparative Analysis is a strategy for systematic analysis of cases based on Boolean algebra and introduced by Charles Ragin in 1987 (Ragin 1987). It brings to

the Social Sciences a perspective that has so far been the domain of engineering. As Ragin himself noted, QCA is identical to a method used especially for the optimisation of electric circuits (C. E. Shannon 1938; Mendelson 1970; Ragin 1999, p. 1233). Like QCA, this method analyses logical combinations of defined states – on/off, true/false, 1/0 – to determine which of these combinations leads to a specified outcome. Figuratively speaking: Which combination of on/off-switches in a network will switch the light on? The algorithm most often used in QCA – the Quine-McCluskey algorithm – was originally developed for the improvement of ‘designing switching circuits such as digital computers, telephone central offices, and digital machine tool controls’ (McCluskey 1956, p. 1417). The notion of ‘fuzzy sets’, which allows for states that are not clearly true or false, 1 or 0, originates from research in electronics as well (Zadeh 1965). Still, as Thiem et al. (2016) posit: ‘The tools of formal logic are not the exclusive domain of analytic philosophers, electrical engineers, or genetic biologists.’ (Thiem et al. 2016, p. 766; similar also: Ragin 1987, p. 85) Charles Ragin is to be credited for developing a Boolean-algebra based method of analysis for the Social Sciences.

QCA has been shown to be a suitable method of analysis for studies sharing traits with the one presented here. Due to its ability to work with medium numbers of cases, QCA has already been applied to comparisons between the German *Länder* (for examples see: Stoiber and Töller 2016; Gross and Niendorf 2017; Hörisch 2018). It has however to be noted that the number of cases alone is not a criterion to use QCA (Blatter, Langer et al. 2018, p. 295). Rather, the method is suitable, when the research interest addresses combinations of explanatory factors leading to an outcome rather than net-effects of continuous variables (C. Q. Schneider and Wagemann 2012, p. 77; for an illustration see: C. Q. Schneider and Maerz 2017). Verweij and Gerrits (2013) demonstrate this with an example from transport infrastructure project evaluation (Verweij and Gerrits 2013).

The aim of QCA is to identify paths for arriving at a given outcome. In my case two different outcomes are of interest: first, the choice of a complex decision-making process, and second, a transition-oriented ministerial output. These paths are expressed as combinations of conditions that in their presence or absence contribute to achieving the outcome of interest. QCA pursues a causes-of-effects approach starting from an outcome and working backwards towards the causes (Thomann and Maggetti 2020, p. 360).

Explanations in QCA are based on set memberships. Sets are ‘conceptual containers’ (Sartori 1970, p. 1038; C. Q. Schneider and Wagemann 2012, p. 24) derived from an understanding of concepts as defining ‘zones of inclusion and exclusion’ (C. Q. Schneider and Wagemann 2012, p. 24). Each condition and each outcome is understood as a set defined by its respective concept, with concepts understood as ‘the basic unit of thinking. It can be said that we have a concept of A (or of A-ness) when we are able to distinguish A from whatever is not-A.’ (Sartori 2009, p. 135) In contrast to variables, which can repres-

ent continua, sets need a defined ‘target’ (Ragin 2008, p. 83) which is usually represented by an adjective+noun structure of set names, e. g. complex process, high administrative capacity etc. At the core, set memberships thus represent differences in kind rather than in degree. Set memberships of cases are coded as 1 for cases that are members of the set or 0 for members that are not members of the set. In crisp-set QCA the differentiation between members and non-members is the only one possible (Rihoux and De Meur 2009, p. 66; C. Q. Schneider and Wagemann 2012, p. 24).

More differentiation is possible in fuzzy-set QCA (Ragin 2008, p. 29). This is currently the most prominent form of QCA, and I will also employ this variant in my analysis. In fuzzy-set QCA, values between 1 and 0 are possible to express differences in the clarity of membership without however giving up the fundamental qualitative differentiation between set members and non-members (Ragin 2008, p. 30; C. Q. Schneider and Wagemann 2012, p. 28). To give an example, it might be clear that, if pressured to decide, we might rather say that a case is a member of the set of high administrative capacity than not. However, there might in the same time be reason to think that according to the concept used the case is not truly one with high administrative capacity. Fuzzy sets allow to express such ‘Yes, but ...’ or ‘No, but ...’ cases where ‘conceptual boundaries’ are not clear (C. Q. Schneider and Wagemann 2012, p. 27). Technically, there is no limit for how fine-grained these values between 1 and 0 can be.

Besides 1 and 0, in fuzzy-set QCA, the set membership value of 0.5 is of particular importance (C. Q. Schneider and Wagemann 2012, p. 28). In order to preserve the qualitative distinction between set members and non-members, even in fuzzy-set QCA a clear line needs to be drawn that separates the two, in fuzzy-set QCA this is the so-called 0.5 anchor (Ragin 2008, p. 30). The value of 0.5 is avoided when determining set memberships, as it implies that there is not even enough information on the case to state whether it is rather a member of the given set or not (C. Q. Schneider and Wagemann 2012, p. 28; Blatter, Langer et al. 2018). This conceptual point is therefore also called the point of maximum ambiguity (C. Q. Schneider and Wagemann 2012, p. 28).

The process of determining whether – or with fuzzy sets: to what extent – a case belongs to a set or not, is called calibration (C. Q. Schneider and Wagemann 2012, pp. 24, 32). There is no uniform standard for how to calibrate cases (Blatter, Langer et al. 2018, p. 320). Two broad variants exist: the direct and the qualitative method of calibration. The former starts out from numerical data and transforms them by relying on a mathematical function and given thresholds for the values of 1, 0.5, and 0 (Ragin 2008, pp. 87–94; C. Q. Schneider and Wagemann 2012, pp. 35–37; Blatter, Langer et al. 2018, p. 318). While this might save the researcher a lot of work, it has also been criticised as providing incentives to use this method in a ‘mechanistic manner’ without further consideration for the meaning of the resulting degrees of set-memberships (C. Q. Schneider and Wage-

mann 2012, p. 37; Blatter, Langer et al. 2018, p. 319). The qualitative method of calibration proceeds in a more case-based fashion and can use all kind of data to determine set memberships based on a careful appraisal of each case (Blatter, Langer et al. 2018, p. 316). Either way, calibration has to be transparent and well-rooted in case knowledge (Ragin 2008, pp. 82–86; Blatter, Langer et al. 2018, p. 316). In my case of qualitative calibration, the former criterion is best fulfilled by spelling out criteria for each grade of membership. In line with the second criterion, my calibration relies largely on the findings from the content analysis. I developed a calibration scheme in light of the findings from the content analysis. Thus, for each membership value – 1, 0.75, 0.5, 0.25, 0 – a verbal description was prepared. The resulting coding schemes for my analysis are presented in the next section below.

As a reliability check, two external coders repeated the calibration of the political position of transport ministers' parties.⁵ This instance lent itself to such an endeavour as in contrast to all other conditions it is distilled from just one kind of document, i. e. election manifestos, that is furthermore not fraught with any issues of confidentiality. Additionally, a reliability check is especially warranted for this condition, as no cross-validation with other material is possible. The congruence between the two calibrations was satisfactory, with 90 % of the codings yielding no or only small differences. All cases where different codings occurred – no matter whether the differences were small or not – were scrutinised. In two cases, the initial calibration was changed in consequence, in one further case the alternative calibration was included in the robustness tests. In all other cases of disagreement, there were substantial reasons to uphold the initial calibration and rather clarify the calibration scheme.

QCA thinking is characterised by taking into account the possibility of equifinality, conjunctural causation, and asymmetry (C. Q. Schneider and Wagemann 2012, p. 8). Equifinality means that more than one path to the outcome of interest is possible. Thus, there might be two or more equally fitting ways to arrive at one outcome (Blatter, Langer et al. 2018, p. 345). Conjunctural causation implies taking into account the possibility that only the joint occurrence of conditions might produce the outcome (Blatter, Langer et al. 2018, p. 344). In contrast, that also means that QCA is not suitable for assessing the net effects of individual conditions (Ragin 2008, p. 190). Asymmetry means that if some combination of conditions leads to a certain outcome, this does not imply that from the occurrence of the outcome this very combination could be inferred (C. Q. Schneider and Wagemann 2012, p. 81). Additionally, the opposite configuration does not necessarily lead to the opposite outcome (C. Q. Schneider and Wagemann 2012, p. 81). For more formal reasons, asymmetry is especially visible in fuzzy-set QCA, where cases of

⁵ A heartfelt *Thank you!* to Mareike Wehling and Hendrik Teichgräber for their swift and meticulous work.

ten have only partly membership in one condition and therefore simultaneously partly membership in the opposite of the same condition. Therefore, negated outcomes need to be studied separately in fuzzy-set QCA (Ragin 2008, pp. 137–138). As a parameter to express the size of the problem of simultaneously explaining the outcome and the non-outcome, the PRI value (‘proportional reduction in inconsistency’) has been proposed (C. Q. Schneider and Wagemann 2012, pp. 242–243). It assesses the prevalence of a given combination of conditions of explaining the outcome over explaining the non-outcome and takes values between 0 (= equally consistent as sufficient condition for both outcome and non-outcome) and 1 (= consistent as sufficient condition for outcome only) (C. Q. Schneider and Wagemann 2012, pp. 242–243; Mendel and Ragin 2012, p. 50). Combinations of conditions with low PRI values, that are thus equally suited for explaining the outcome as for explaining the non-outcome, are logically problematic and should not be used for interpretation.

QCA operates on the notion of logical combinations of necessary and sufficient conditions. Thus, when specifying combinations of conditions that are logically connected to an outcome, QCA differentiates between conditions that always have to be present in order for the outcome to appear – hence, necessary conditions – and conditions whose presence is always accompanied by a presence of the outcome – hence, sufficient conditions (Ragin 1987, p. 99; Thomann and Maggetti 2020, pp. 359–360). Necessary conditions are rather rare, usually there is not one condition – or combination of conditions – that has to be present in every instance for the outcome to be present (C. Q. Schneider and Wagemann 2012, p. 74). Therefore, the search for sufficient conditions is at the heart of QCA. The analysis might then not only reveal individually sufficient conditions but so-called INUS conditions, that are ‘insufficient but necessary parts of an unnecessary but sufficient condition’, thus, a condition that only together with another condition forms a sufficient path to the outcome (C. Q. Schneider and Wagemann 2012, p. 79).⁶

The notation used in QCA analyses is derived from formal logic and Boolean Algebra. Sufficient as well as necessary conditions can occur in the form of single conditions or in the form of conjunctions, thus combinations of conditions combined by a logical AND. In formulas, this is expressed by a multiplication sign, which can also be left out. More often than not there are several sufficient conjunctions for an outcome, these are then treated as combined by a logical OR, expressed in formulas by a plus sign. Conditions can be parts of necessary and sufficient conjunctions in their presence as well as in their absence, the latter being equivalent to a logical NOT. In formulas, absence is denoted with a tilde sign. There are other notations possible (for an overview see: C. Q. Schneider

⁶ The equivalent for necessity relations are SUIN conditions, that are sufficient but unnecessary parts of an insufficient but necessary condition (C. Q. Schneider and Wagemann 2012, p. 80).

and Wagemann 2012, pp. 54–55), but I will rely on the ones just mentioned throughout my analysis.

The central means of analysis of sufficiency in QCA is the so-called truth table. A truth table lists all combinations of the studied conditions in their presence and absence, hence a truth table with k conditions will have 2^k rows (Ragin 2008, pp. 124–125). Each row represents a potential statement of sufficiency – provided there is empirical evidence of cases showing the respective combination of conditions as well as the outcome of interest. All cases that have the same combination of conditions will be sorted to the respective truth table row. The consistency of the row is calculated from the deviances of the cases from a perfect sufficiency relation (C. Q. Schneider and Wagemann 2012, p. 126). A perfectly consistent row with all cases in line with the respective statement of sufficiency would receive a consistency value of 1. This is equivalent to stating that the respective combination of conditions is sufficient for producing the outcome of interest. Consistency values should not be lower than 0.75 (Ragin 2008, p. 44), rather considerably higher (C. Q. Schneider and Wagemann 2012, p. 297), in order to still deem the respective row sufficient. Furthermore, in QCAs with many cases, a frequency cut-off can be defined, so that e.g. only combinations are regarded as sufficient, when the respective row is at least populated by a certain number of cases (C. Q. Schneider and Wagemann 2012, p. 153). Given the number of 32 cases in my study, the frequency threshold is left at 1, so that every row is considered that represents at least one empirical case. Table 3.3 on the next page shows a stylised truth table for a QCA with two conditions and ten cases. In the last column, a few explanatory comments are added.

Relying on the sufficient truth table rows, the least complex formula is sought that includes the information of the individually sufficient rows. This process is called minimisation. It relies on the logical conclusion that when, all else being equal, a condition in its presence as well as in its absence leads to the outcome, it is irrelevant for the explanation (Ragin 1987, pp. 93–95; Rihoux and De Meur 2009, pp. 35–36). In the example of table 3.3 the information from the two sufficient rows $A*B + A*-B \Rightarrow Z$ would thus be minimised to $A \Rightarrow Z$, with B being irrelevant as in conjunction with A its presence or absence does not make any difference for the achievement of the outcome.

A central problem in QCA arises when not all truth table rows contain cases – thus, there are potential combinations of conditions that did not arise in the cases studied. This problem is called ‘limited diversity’ and the empty truth-table rows are referred to as ‘logical remainders’ (Ragin 2008, pp. 147, 155; C. Q. Schneider and Wagemann 2012, pp. 152–153). It is rare to have a truth table that is ‘fully specified’, thus having no logical remainders (Ragin and Sonnett 2005, pp. 187–188; Blatter, Langer et al. 2018, p. 342).

Table 3.3: Stylised and commented truth table

A	B	OUT	n	incl	PRI	cases	comments
1	1	1	4	1.00	1.00	case 1, case 7, case 8, case 10	This row is perfectly consistent. The combination of conditions $A*B$ is thus sufficient for the outcome.
1	0	1	2	0.95	0.85	case 3, case 6	This row has a slightly decreased consistency. Probably, one of its cases has no full (but partial) membership in the outcome. Still, also the combination $A*\sim B$ could be deemed sufficient for the outcome.
0	1	0	4	0.67	0.45	case 2, case 4, case 5, case 9	This row has a consistency considerably below 0.75 and thus clearly includes cases that do not have the outcome. Furthermore, its PRI value indicates that this combination is more likely to explain the negated outcome than the outcome itself. The combination $\sim A*B$ cannot be deemed sufficient for the outcome.
0	0	?	0	—	—	—	This row is a logical remainder. There are no empirical cases in the sample displaying the absence of A as well as the absence of B. Hence, it cannot be determined whether the combination $\sim A*\sim B$ is sufficient for the outcome.

OUT = sufficient for having the outcome; n = number of cases; incl = consistency; PRI = prevalence of explaining the outcome over explaining the non-outcome

Still, given the moderate number of conditions, my truth tables are fully specified, so that this central problem of QCA does not occur in my analysis.⁷

⁷ As it seems odd to introduce QCA without mentioning the different solution terms available, here is a brief explanation: There are three ways for coping with limited diversity that lead to three potentially different solution terms in a QCA: The first option is to assume that all non-occurring combinations would not be sufficient for producing the outcome (Ragin and Sonnett 2005, p. 182; Thiem 2019, pp. 7–8). Hence, only actually observed truth table rows can be included in the minimisation procedure. This results in the so-called ‘conservative’ solution, that is strictly descriptive of the data at hand (C. Q. Schneider and Wagemann 2012, p. 162). A second option is to treat missing truth table rows as combinations where we ‘don’t care’ whether or not they are sufficient for the outcome (Ragin and Sonnett 2005, p. 183). In practice that means that logical remainder rows are treated as sufficient when that makes the resulting solution term easier (Ragin and Sonnett 2005, p. 183). This can usually only be assessed by reliance on a software that compares the various simulations of assumedly sufficient rows (Blatter, Langer et al. 2018, p. 340). The third option is called the ‘intermediate’ solution that is obtained when only such missing rows are included for minimisation that make the solution term easier and conform to theoretical expectations about such cases having the outcome (C. Q. Schneider and Wagemann 2012, pp. 168–169).

QCA demands the researcher to take many decisions in the analytical process which has given rise to concerns about robustness (Oana, C. Q. Schneider and Thomann 2021, p. 143). The researcher has to decide on calibrations as well as on thresholds for how consistent a truth table row has to be in order to be deemed sufficient and therefore be included in the minimisation procedure (C. Q. Schneider and Wagemann 2012, p. 285). Potentially, these decisions alter the solution term one arrives at. In order to check to what extent this is the case and discuss potential different solutions, robustness checks are recommended (C. Q. Schneider and Wagemann 2012, p. 285; Oana, C. Q. Schneider and Thomann 2021, pp. 144–145). These consist in repeating the analysis with said changes in calibrations and consistency thresholds. Then, these new solutions are compared to the initial solutions so that the common ground between them can be distilled, the so-called ‘robust core’ that is not affected by any of the changes made (Oana, C. Q. Schneider and Thomann 2021, pp. 146–147). Technically, this is done by calculating the logical intersection between the solution terms derived in the initial analysis and in the subsequent test analysis with the various changes applied (Oana, C. Q. Schneider and Thomann 2021, pp. 146–147). To give an example: If the initial solution in a QCA with three conditions had been $AB + BC \Rightarrow Z$ and the test solution had been $AB + AC \Rightarrow Z$, the robust core $AB \Rightarrow Z$ would constitute the common ground between them, that is impervious to the respective changes in calibrations and thresholds.

One possible goal for QCA is a contribution to theory refinement (Engeli et al. 2014, p. 88). C. Q. Schneider and Wagemann (2012) posit that QCA is unfit to ‘test’ hypotheses, but nevertheless has high potential for theory evaluation (C. Q. Schneider and Wagemann 2012, pp. 296–297). However, the denial of any ‘hypothesis testing’ is mostly to express that QCA is not a statistical method and therefore obviously does not allow any sample-based conclusions about populations – there simply is no equivalent to the p-value. Furthermore, hypotheses referring to the effect of single variables contradict the logic of QCA, they can therefore not be assessed (C. Q. Schneider and Wagemann 2012, pp. 296–297). In that sense, the averseness to the term ‘hypothesis testing’ is rather meant to avoid misunderstandings – Yes, it uses numbers; no, it is not statistics. – than declare QCA unfit to falsify hypotheses as potentially wrong statements about the world in a logical sense. Indeed, ‘set-theoretic hypotheses’ are frequently tested by using QCA (Thomann and Maggetti 2020, p. 359). Avoiding confusion with statistical methods of analysis is behind much of the insistence on QCA-specific vocabulary – it serves as a reminder that QCA is concerned with set-memberships and conditions, while statistics use numerical measurement and variables, and that the two approaches rely on different mathematical foundations (C. Q. Schneider and Wagemann 2010, p. 404).

Theory evaluation in QCA goes beyond declaring an empirical finding in line or opposed to previously formulated propositions (C. Q. Schneider and Wagemann 2012,

p. 295). QCA's take on theory evaluation allows an assessment to what extent theoretical propositions explain the empirical cases in light of the empirically found solution (C. Q. Schneider and Wagemann 2012, p. 304; Thomann and Maggetti 2020, pp. 374–375). To that end, a case-based fit between theoretical and empirical solutions is determined (Ragin 1987, pp. 118–121). Technically, this requires expressing theoretical expectations in Boolean terms. Like just described for robustness tests, the Boolean expressions for the theoretical expectations and for the empirically found solution are then intersected to arrive at a formal description of cases that are equally covered by the expected as by the found solution. Additionally, three more intersections are calculated taking also into account the negations of theoretical expectations and empirical findings. This makes it possible to interpret four different combinations of conditions (C. Q. Schneider and Wagemann 2012, pp. 298–299):

- theoretically expected and empirically found to be associated with the outcome
- theoretically expected but not found empirically to be associated with the outcome
- not theoretically expected but empirically found to be associated with the outcome
- neither theoretically expected nor empirically found to be associated with the outcome

For each of these combinations it can be determined how many and which cases are covered by them (C. Q. Schneider and Wagemann 2012, p. 304). Distinguishing furthermore between consistent and inconsistent cases for each of the four categories results in eight different combinations (C. Q. Schneider and Wagemann 2012, pp. 300–301). This allows a more nuanced assessment of how well theoretical expectations fit empirical reality.

The approach to theory evaluation and the case-based foundation of QCA have implications for the generalisability of the results obtained. The results of QCA cannot be generalised to a population of cases in a statistical sense (Engeli et al. 2014, p. 64). Rather they identify possible pathways to certain outcomes (Engeli et al. 2014, p. 64), thus informing abstract knowledge on relations between conditions and outcomes (Thomann and Maggetti 2020, p. 374). To what extent this knowledge then can travel to other cases and other fields of interest depends on case selection, validity, and the reasoning behind it (Thomann and Maggetti 2020, pp. 361–362). For this study here, the latter two aspects are the subject of this chapter and of the theory chapter. Thus, the remaining question is for the universe of cases that the results can be generalised to. I will come back to this in the discussion chapter after the analysis.

Despite still being rather a young method under constant development (Thiem 2019, p. 2), some best-practice guidelines for QCA have emerged. The technical guidelines have been summarised by the network of QCA scholars, COMPASSS, for their working paper series (COMPASSS 2009; for a more elaborate treatment see: C. Q. Schneider and

Wagemann 2010, 2012, pp. 275–284; Buche 2017, ch. 1.3). According to COMPASSS, a QCA paper ought to

- explain the calibration procedure used,
- provide the calibrated dataset,
- make transparent the parameters used like frequency and consistency thresholds as well as the software used,
- include an analysis of necessity,
- provide the truth tables produced,
- discuss all solution types,
- discuss how the resulting solution was produced.

All of these points will be addressed in this thesis. Most aspects will be covered in the analysis chapter. The discussion of the calibration ensues in the remainder of this chapter.

3.4 Operationalisation

The process of getting from concepts to measurement is generally referred to as operationalisation. In the context of QCA, this blends over into the calibration of cases, thus, the process of determining the set-memberships (Blatter, Langer et al. 2018, p. 314). The term ‘calibration’ is borrowed from natural sciences and engineering where it refers to the adjustment of measuring devices so that they are consistent with a norm device (Ragin 2008, p. 72). Hence, the term calibration emphasises the fit between theoretical concepts and determination of set-memberships, also known as validity. QCA and variable-oriented science both agree on the necessity of carefully and transparently transforming concepts into analytical material, it is just the resulting activity – calibrations vs. measurement – that makes the difference.

A sound calibration is vital for a good QCA. Therefore this section introduces the outcomes and conditions and puts forward the criteria used for the respective calibration. The calibration of the final output relating to the result of ministerial decision-making is described and discussed in the first section. The second section treating the calibration of all remaining conditions is comparatively shorter, as these calibrations rely heavily on the results of the content analysis. Hence, the first part of the analysis chapter can in a sense be read as part of the calibration. The respective section here introduces all conditions and briefly summarises the basis for their calibration, while the more detailed discussion is left for the content analysis later-on. A third section assembles the coding schemes for conditions and outputs detailing under what circumstances a case receives which membership value of 1, 0.75, 0.5, 0.25, or 0.

3.4.1 Transition-oriented output

What I seek to explain are ministries' ways to arrive at outputs, that diverge from the car-oriented status-quo. In QCA language, the phenomenon to be explained is referred to as outcome. In this case, this leads to the slightly confusing situation that the methodological *outcome* is an *output* in policy-analytical terms (Sack and Sarter 2018, online appendix p. 1). Specifically, I will focus on the outcome of outputs diverging from the status-quo in the direction of less road orientation. Thus, I *do not* study, why outputs are derived that emphasise a road-oriented status quo, but expressly under what circumstances they leave the status quo behind in a clearly specified direction. The respective set thus is *transition-oriented output*, denoted in the analysis by the letter Q.

The status quo for long-distance infrastructure planning is the BVWP 2003. It comprises the infrastructure projects that were to be constructed until 2015 (BMVBW 2003, p. III). Some of those were finished during this time, many were not – which did not actually come as a surprise: The imbalance between high project numbers and restricted financial means for the BVWP 2003 has been heavily criticised (Heuser and Reh 2016, p. 251; Fichert 2017, p. 28). Still, when drafting their proposals for the BVWP 2030, the *Länder* could look at the BVWP 2003 as an anchor for what the federal level might accept – even though the top-down communication had emphasised a less lenient approach this time. Proposing roughly the same amount of projects that had been included in the previous BVWP would, given the uncertainty about the decision-making framework on the national level, be a rational approach to gauging which volume of proposals might be sensible.

An obvious demur to this addresses the focus on number of projects instead of costs. That is a valid concern as different projects differ considerably in their financial implications: The planning costs for an entirely new federal highway will in many cases be higher than the ones for adding a lane to an already existing motorway; the construction costs, on the other hand, might be higher for the latter due to construction requirements and, possibly, length (interview 18). The projects differ in length as well as complexity, the complexity being, among other things, driven by project type, topography, and level of conflict. All are drivers of costs and lead to situations where five projects in one *Land* are neither equally work-intensive nor equally costly as five projects in another *Land*. Thus, the financial implications of the projects proposed should be considered.

Casting the output in financial terms only would, however, be insufficient. First, costs and prices have naturally changed between 2003 and 2013/2014. Thus, a direct comparison between the two years would suffer from this incomparability. Second and more conceptually troubling, relying on costs alone would put undue weight on large (maybe even prestige-)projects. Rheinland-Pfalz proposed a rail project along the Rhine with costs that are estimated in the billions (BVU and SMA 2015). This one project alone

would make Rheinland-Pfalz the rail-oriented case par excellence. Considering the outcome of interest, such a solution hardly seems adequate.

Consequently, a transition-oriented output would be characterised by a tendency to propose less road projects than have been included in the BVWP 2003 or a higher number of rail projects, respectively, seen in relation to the type, complexity, and costs of the projects proposed. This comparison for each *Land's* proposals with the respective *Land's* projects in the BVWP 2003 has the advantage to hold all *Land* specific factors constant between the two points of comparison. Certainly, the absolute number of projects depends on the size of the *Land*, its settlement structure as well as its geographical position relative to main transport corridors. This makes comparisons between the *Länder* rather complex and, what is more, rather technical. Comparing each *Land* exclusively with itself mitigates this problem.

These patterns of interlacing aspects call for a careful appraisal of the proposal lists. It would be hard, or indeed impossible, to derive an exact number, that neatly captured the degree of status-quo orientation of the output accurately to the first or second decimal. Calibration of the data for QCA allows to pay tribute to this complexity. It requires scrutiny of each individual case to determine whether the case is transition-oriented in the sense stated above or not or whether it is neither fully the one nor fully the other but has a tendency towards one of both sides. The point of maximum ambiguity – thus the 0.5 anchor for QCA – should be reserved for constellations of indicators that are extremely contradictory with some indicator(s) pointing towards maintenance of the status quo while others point with equal clarity in the opposite direction.

Following these considerations, the set-membership for the outcome is based on a comparison between project numbers and financial volumes in the former BVWP 2003 and the proposals for the current BVWP 2030. It takes into account whether a *Land* proposed fewer road projects, more rail projects and which financial volume these projects add up to, respectively. The balance to strike is one of the propensity to propose projects at all and the complexity of these projects approximated by their financial volume, while not overemphasising single large projects. Consequently, the number of projects is given more weight than the financial volume, while strong increases in financial volume that are not solely due to one single large project are treated as a marker of orientation towards the respective transport mode as well.

Assembling the respective numbers for road and rail projects and their financial volumes involves a few challenges, that can however be addressed. Overall, assessing the situation for road projects is easier, as the *Länder's* responsibility for managing the federal highways brings with it a greater focus on numbers on the *Land* level. This is not the case for rail projects, where the *Länder* have no competences for long-distance rail.

Additionally, long-distance rail projects often involve several *Länder*, so that the costs cannot be broken down on the *Land* level.

Concerning road projects, the challenge is in gauging the financial volume of proposals per *Land*. The numbers of road projects can rather easily be extracted from the former BVWP (BMVBW 2003) and the current *Länder* proposals (BMVI 2014c). The financial volume of road projects per *Land* can be taken from the former BVWP as well. The financial volume for the proposed projects for the current BVWP are not as easily attainable. The lists published by the BMVI, and which it also promised to provide in answers to parliamentary questions on the topic (Deutscher Bundestag 2014b,a), only detail the projects but not their expected financial volume broken down by *Land*. This problem, however, shrinks when considering that the difference between the overall financial volume for proposed and assessed projects is comparatively small – the overall financial volume of all proposed projects has been proclaimed as 114 billion Euro (Bundesrechnungshof 2016, p. 6), while the volume of all positively assessed projects is 104 billion Euro (own calculation based on BMVI 2016b, pp. 75–154).

It is desirable to use the financial volume of positively assessed projects per *Land* as an approximation for the comparison as it avoids relying on the non-uniform cost estimation standards of the *Länder*. Some *Länder* have also published estimations of the financial volume of their proposals (e. g. Bürgerschaft Hamburg 2014). However, the sums for only the positively assessed projects in the BVWP partly exceed these estimations for all proposals, thus pointing to differences in cost estimations on the *Land* versus the federal level. Therefore, it is desirable to use cost estimations exclusively carried through on the federal level, even though these have been criticised for failing to achieve perfect comparability as well (Bundesrechnungshof 2016, p. 3). It can be assumed that cost calculations on the *Land* level would diverge even more. Those involved in the processes on the *Land* level confirm a general incommensurability of cost estimations across the *Länder* due to a lack of federally imposed standards and that comparable numbers were only attained after the federal assessment (BB-02, HE-02, RP-01, ST-01). Thus, relying on the BVWP as a proxy for the financial volume of the proposals is the least problematic and in the same time pragmatic solution.

In terms of rail projects, the challenge involves pinning down the status quo per *Land* as well as the financial volumes. The numbers of proposed rail projects for the BVWP 2030 could be retrieved from ministries' websites, press releases, or were provided by the ministries via e-mail. The respective sources are listed in appendix C.1. The financial volumes of these projects were collected from the project database PRINS (BMVI 2016e) with the caveat that the database does not provide cost estimates for all rejected projects. Only Baden-Württemberg has come forward with own cost estimations for their rail projects (Ministerium für Verkehr Baden-Württemberg 2016b), these estimations do

however not match with those on the federal level. Thus, I rely on the costs from the project database. When calibrating the outcome for rail I will also take into account for how many projects costs are actually missing. As rail projects are not broken down on *Land* level costwise, for each *Land* the full costs of all its proposed projects are summarised. As projects could be proposed by more than one *Land*, some project costs are attributed to more than one *Land* as well. Thus, these *Land* sums should not be summarised as they would not represent any meaningful value but a multiple of the actual costs.

The description of the status-quo for proposals of rail-infrastructure requires breaking down the rail projects of the BVWP 2003 to the *Land* level. In order to arrive at numbers for the status quo, the 25 projects from BVWP 2003 were ascribed to those *Länder* where stops were named in the project name (e.g. the project ABS Karlsruhe — Stuttgart — Nürnberg — Leipzig/Dresden would be ascribed to Baden-Württemberg, Bayern, and Sachsen). Projects were additionally ascribed to *Länder* that proposed these projects for BVWP 2030 thus demonstrating an interest in them – Paderborn — Chemnitz was thus also ascribed to Thüringen, and all Berlin-related projects also to Brandenburg. The respective costs were then taken from the BVWP 2003 and added up. In general, costs for rail projects particularly suffer from the risk of being dominated by individual large (prestige?) projects. Therefore, a careful appraisal of the proposals is warranted when calibrating set-membership for the outcome of ministerial decision-making for rail.

The next section outlines the calibration considerations for the conditions, before section 3.4.3 presents the coding schemes.

3.4.2 The conditions

The calibration of the explanatory conditions – including process complexity which occupies an intermediate position by also being used as an outcome once – proceeds in light of the case knowledge gained by the content analysis about minister's programmatic position, the salience of infrastructure policy as a topic, process complexity, readiness to act according to federal wishes, and administrative capacity. Set-memberships for the conditions are assessed by relying on the codings used in the qualitative content analysis. Therefore, the explanation of the calibration of the conditions can be relatively brief here – it follows directly from the content analysis.

In contrast to the findings from the content analysis, the calibrations do not specify positions on a continuum but degrees of membership in a given set. For each condition full membership can be differentiated from non-membership with the further gradations partial membership ('more in than out') and partial non-membership ('more out than in'). Five sets are constructed:

- Election manifestos of transport ministers' parties are scrutinised in light of their revealing a *transition-oriented position (E)*, meaning renouncing road-oriented infrastructure expansion and focussing on rail infrastructure. I assume that the respective party manifesto represents the political position of the minister. For calibration, explicit prioritisation of one transport mode over another, implicit prioritisation by calls for expansion and the naming of specific projects are taken as cues.
- The set of *high salience (S)* is characterised by a documented focus on infrastructure planning and de-facto engagement of the respective minister. This is assessed by considering the numerical weight of the respective transport mode in election programmes and coalition agreements as well as formulations of technical urgency and de-facto engagement of the political level. As the numerical weight is a rather rough measure, the extent of de-facto engagement takes precedence in the case of doubt.
- A *complex process (P)* is one characterised by efforts to enhance the process with participation by the public, economic and other third actors, to base project choice on a clearly specified framework and gather additional information. All these characteristics are assumed to potentially hinder a direct transformation of a political programme into a ministerial output. The respective information is taken from documents and interviews. The calibration for this set sums up a *Land's* efforts to enhance the decision-making process beyond the formal requirements.
- The set of *high administrative capacity (C)* comprises cases where ministerial officials perceive staff levels as generous and have financial resources available to commission additional work. The respective information is mostly gained from the interviews, partly also from documents. It is calibrated according to the perception of ministerial officials, which in turn might also rely on staff levels, legal competences, the availability of financial resources, and availability of a well-staffed subordinate authority.
- The condition around the relations between the level requires a recasting for conceptual reasons versus the treatment in the content analysis. The federal level had asked the *Länder* to be 'realistic' when proposing projects – thus, rather fewer projects with properly calculated costs – as well as strictly keeping to a focus on long-distance projects. In contrast to all other conditions, anticipation of federal expectations by the *Länder* works in opposite directions for the two transport modes. While effective anticipation of federal expectations to propose less projects works in favour of a more transition-oriented output in terms of road projects, it works against such an output for rail-related decision-making processes. There are two options to address this problem: first, an additional condition that differen-

tiates rail-related and road-related decision-making processes; second, a recasting of the anticipation condition so that it works in favour of a transition-oriented output for both transport modes.

- The first option is problematic as each additional condition will exacerbate the problem of limited diversity in QCA, meaning that – as the number of potentially possible combinations will be doubled with each condition added – there will be more combinations that are not observed empirically and more combinations that will only be present in one case. This limits the potential for meaningful minimisation of the truth table and thus the identification of more general patterns.
- The second option – recasting the condition – is a purely conceptual exercise that simply reverses the interpretation of the respective category for the rail-related processes. Consequently, it poses no problems for the ensuing QCA and just requires attention to this conceptual change when interpreting the outcomes later. As road and rail related processes are combined within the analysis, this will require a careful appraisal of the cases covered by the respective solution. As QCA motivates engagement with the cases studied anyway, this is not problematic.

Similar to the condition for programmatic positions, the set relating to the anticipation of federal wishes is cast as *transition-oriented behaviour towards federal expectations (F)*. Members of the set would thus follow federal expectations to propose less extensively in case of road projects but would outright ignore federal wishes when it comes to rail projects. Both documents and interviews have provided information for this set.

The following section presents the coding schemes for all conditions and outcomes.

3.4.3 Coding schemes

The QCA will be performed for two outcomes: QCA 1 will ask whether salience as perceived by the respective minister and/or high administrative capacity could lead to complex decision-making processes. QCA 2 is dedicated to finding out, whether any combination from a transition-oriented election programme, transition-oriented behaviour towards federal expectations, and a complex decision-making process is associated with a transition-oriented ministerial output. Tables 3.4 on the following page and 3.5 on page 97 detail the criteria for the calibration of the single conditions and the respective outcome.

Table 3.4: Calibrating the conditions for the outcome ‘Complex decision-making process’

Cond.	Set	Full membership (1)	Partial membership (0.75)	Maximum ambiguity (0.5)	Partial non-membership (0.25)	Full non-membership (0)
S	high salience	BVWP preparation explicitly mentioned in party and/or coalition documents and high de-facto attention	BVWP preparation not mentioned but high de-facto attention or mentioned and medium de-facto attention	BVWP preparation is mentioned in documents but de-facto attention is low	BVWP preparation is not explicitly mentioned and de-facto attention is focussed on single cases	BVWP preparation is treated with low-key attention and as a routine matter
C	high administrative capacity	generous staff level and financial resources for commissioning additional work	staff level or financial resources are a limiting factor, but perceived as sufficient overall	staff levels are generous but financial resources are scarce or vice versa	staff level or financial resources are perceived as restricting official's work	the levels of staff and financial resources are barely sufficient for task fulfilment
P	complex process (outcome)	decision-making systematically enhanced by involving additional actors and gathering additional information	systematically enhanced by either involving additional actors or gathering additional information	decision-making is unsystematically enhanced by additional efforts for some projects	overall low effort but additional effort for individual projects or low-key internal revision of projects	decision-making is carried through with minimal effort

Table 3.5: Calibrating the conditions for the outcome ‘Transition-oriented ministerial output’

Cond.	Set	Full membership (1)	Partial membership (0.75)	Maximum ambiguity (0.5)	Partial non-membership (0.25)	Full non-membership (0)
E	transition-oriented election programme	prioritises rail over road, calls for extension of rail network, names more rail than road projects	no clear priority, but de-facto focus on rail	calls for road network expansion but lists more rail projects or vice versa	no clear emphasis, but de-facto focus on road	emphasizes importance of road, no rail projects, calls for road network extension only
F	transition-oriented behaviour towards federal expectations	actors respect federal wishes for less proposed road projects, but knowingly defy federal expectations for rail projects	partly striving to fulfil federal criteria for road projects, refraining from proposing individual rail projects out of respect for federal wishes	actors respect and disrespect federal wishes to a similar degree	partly striving to fulfil federal criteria for rail projects, refraining from proposing individual road projects out of respect for federal wishes	actors knowingly act against federal wishes when proposing road projects and respect federal wishes when proposing rail projects
P	complex process	decision-making systematically enhanced by involving additional actors and gathering additional information	systematically enhanced by either involving additional actors or gathering additional information	decision-making is unsystematically enhanced by additional efforts for some projects	overall low effort but additional effort for individual projects or low-key internal revision of projects	decision-making is carried through with minimal effort
Q	transition-oriented output (outcome)	more rail and less road projects than in previous BVWP, both numerically and financially	considerable numerical changes at similar costs	considerably lower number of projects but considerably higher financial volume or vice versa	similar costs with some numerical changes	similar or more road and less rail projects than in previous BVWP, both numerically and financially

Based on the coding schemes, I have prepared a profile for each *Land* that summarises the information available from election programmes, coalition agreements, interviews and further documents on the conditions and outcomes. Based on this profile, each case receives a set-membership value in each condition and the outcome for its rail-related decision-making process and for its road-related decision-making process. Table 3.6 illustrates such a profile for the case of Brandenburg. The profiles for all cases can be found in appendix D.

Table 3.6: Calibration profile for Brandenburg

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	careful general infrastructure expansion, names only one specific road project	0.25	no clear positioning, emphasis on relevance of regional rail, careful general infrastructure expansion, names two specific rail projects	0.25
F	transition-oriented behaviour towards federal expectations	emphasis on federal expectation to propose fewer projects, wish for clearer federal guidelines, choice based on study commissioned together with federal level	1	proposals regardless of chances	1
S	high salience	minister's wish for public participation, relatively extensive discussions in parliamentary committee, no mentioning in coalition agreement	0.75	no intra-ministerial coordination, <i>Landtag</i> approval via committee, topic not in coalition agreement, opinion to federal level not written by minister	0.25
P	complex process	clear methodology for project choice based on a study of weak points and the so-called "Blue Network", public participation	1	no external input sought, no concept but some reliance on plan for local/regional rail, pre-study for one regional rail project	0
C	high administrative capacity	working group of ministry, subordinate authority, commissioned office; some strain due to public participation under time pressure	0.75	reliance on transport association VBB; no rail expertise in ministry	0.25
Q	transition-oriented output	lower number of projects, lower costs	1	clear change in numbers, cost reduction as 40% of projects are ongoing and therefore no data available	0.75

Part II

Empirical part

4 The *Bundesverkehrswegeplan*

The *Bundesverkehrswegeplan* (federal transport infrastructure plan, BVWP) is the regularly updated infrastructure strategy of the federal government for federally owned infrastructure. It is prepared under the responsibility of the respective federal ministry of transport and outlines the strategy alongside with project lists for infrastructure expansion throughout the following ten to fifteen years. At least potentially, it is a caesura in an otherwise continuous general demand planning framework.

In this chapter, I provide an overview over the state of the discussion on transport infrastructure policy and then introduce the field of German long-distance road and rail planning.⁸ A first section summarises current discussions on transport infrastructure

⁸ The BVWP also includes waterways. However, I focus on road and rail infrastructure. While a shift of goods transport from road to waterways is also discussed in terms of more sustainable mobility, comparability to the other two transport modes is somewhat restricted. Waterways are – even more than the other infrastructure modes – linked to specific topographical circumstances, notably the occurrence of

policy on a general level, thus providing a general context for the ensuing more specific infrastructural topic. Second, I provide an overview of regulations and findings on long-distance road and rail planning in Germany, thus describing the regulatory background for the topic under study. Third, a description of the BVWP procedure ensues, both from a political-science perspective and with regard to the legal-administrative basics, thus providing some background knowledge about the specific policy used for analysis. A final section briefly summarises the key points of this chapter and spells out the empirical contribution of this thesis. This chapter sets the stage for the subsequent discussion and analysis throughout this thesis.

4.1 Current discussions on transport infrastructure policy

Infrastructure policy has some general characteristics, regardless whether it concerns transport, energy, or communication infrastructure. In this section, I outline some of these general notions on infrastructure policy. These are not specific for Germany even though I use some Germany-related examples for illustration. I consider four aspects: First, infrastructure policy is mostly concerned with networks that are characterised by complexity, insecurity and ambiguity. Second, their governance is usually dominated by the executive and experts. Third, infrastructure policy is impacted by attempts to achieve a sustainability transition and create energy systems that do no longer rely on fossil fuels, which in Germany goes under the term of *Energiewende*. As this theme is central to the set-up of my study, I treat it more extensively. Fourth, in the context of attempts to achieve more sustainability, infrastructure policy is increasingly politicised. In this section, I address these four aspects with transport infrastructure in mind even though many points also apply to infrastructure more broadly.

4.1.1 Complexity, insecurity and ambiguity

Infrastructure often comes in the form of networks – be it energy, transport or communication networks (Jäger 2004, p. 30). It has to deal with technical complexity, long-term and therefore uncertain costs and benefits, and with ambiguity among possible solutions (Wegrich and Hammerschmid 2017, pp. 27–28).

The technical complexity of infrastructure policy arises from the high number of technically interacting parts, hence the network character (Wegrich and Hammerschmid 2017, p. 27). For the example of railways, the infrastructure comprises tracks, signals as well as stations (Sack 2019, p. 46) – each of these parts is worthless unless the other

rivers. These are limited in number and cannot easily be multiplied by will. This restricts the room for manoeuvre and therefore also the insights that can be gained from studying decision-making in these cases in a medium-n design, it rather lends itself to case studies.

parts connected to it are operative as well. Due to this complexity and high maintenance costs, there is usually just one network of each infrastructure type, and privatisation of such network infrastructures suffers from these so-called natural monopolies (Sack 2019, pp. 27–28, 45–46) – still, in principle, deregulation and privatisation remain possible (Döhler 2019). This is especially true for services provided on the respective network (Sack 2019, p. 46). From a governance perspective, market relations are inefficient for the construction of infrastructure, and negotiations are the dominant mode of governance in this field (Bandelow, Lindloff et al. 2016, p. 173).

Infrastructure planning suffers from the inherent uncertainty in this field. All negotiations about infrastructure construction take place with restrained information about costs and benefits of the project at hand (Anheier 2017, p. 64). This is simply because infrastructure projects are inherently long-term (Wegrich, Hammerschmid and Kostka 2017, p. 3), so that their true benefits and often enough also the costs cannot be fully known up-front. Attesting to the latter is that cost-overruns in infrastructure building is a frequent and widespread phenomenon (Flyvbjerg et al. 2003, p. 71; Wegrich and Hammerschmid 2017, p. 27). Concerning the benefits, knowing the demands for roads or railways a decade or two in advance is – if at all – possible in tendency but not in any detail given changes in demography, travel behaviour, economy, or technology.

Complexity and uncertainty combine to often ambiguous problem solutions, as the evidence at hand can be interpreted differently by the actors involved (Wegrich and Hammerschmid 2017, p. 28). Ambiguity is not a problem which could be solved with more information, but entails that actors will settle for an acceptable rather than for the – hard to find – best solution while emphasising their respective field of competence (Wegrich and Hammerschmid 2017, pp. 28–29). Thus, considerations of bounded rationality, that incorporate actors' environmental and cognitive limitations when reaching decisions, (B. D. Jones 2003, 2017; B. N. Shannon et al. 2019) have been included when conceptualising the theoretical framework in chapter 2.

These general structural characteristics of infrastructure policy, that are just as valid for transport infrastructure planning, have consequences for how planning processes are conducted and entail a dominant role for experts and executive actors.

4.1.2 Technical dominance

As a result of complex and often ambiguous policies, decision-making in infrastructure policy is characterised by technical dominance. Transport policy has long been regarded as a rather technical and scarcely politicised policy field (Bandelow, Lindloff et al. 2016, p. 165) and it is unclear to what extent transport policy does more than react to developments in other policy fields (Schwedes and Ruhrort 2016, p. 230). Bandelow, Lindloff et al. (2016) note with regard to negotiations about transport policy on the EU level

that the strong reliance on transport models and forecasts in decision-making leads to a particularly strong role for expert knowledge, while normative considerations receive less attention (Bandelow, Lindloff et al. 2016, pp. 171–172). On the national level, expert knowledge and the choice of experts has considerable weight in decisions about infrastructure projects as well (Bandelow, Lindloff et al. 2016, p. 175). Wegrich, Hammerschmid and Kostka (2017) conclude that the prime challenge in the governance of infrastructure lies in acquiring sufficient ‘management capacity of governing systems’ in order to make sense of all the information at hand (Wegrich, Hammerschmid and Kostka 2017, p. 6).

Prominent actors in transport infrastructure policy are the executive, thus, ministries and bureaucracies, as well as organised interests, while parties and parliaments rather have a minor part (Bandelow, Lindloff et al. 2016, p. 172). Additionally, decision-makers are targeted by lobbyist groups – in transport policy to a particularly strong extent (Sternkopf and Nowack 2016). The role of third actors is exacerbated as ‘central actors’ have no general preferences on the topic but react to perceived problems by relying on business-as-usual solutions (Bandelow and Kundolf 2018, p. 163). In general, the multitude of actors involved makes it difficult to translate transport political goals into specific policies (Fichert and Grandjot 2016, pp. 137–138; Bandelow and Kundolf 2018, p. 165). By studying decision-making in transport ministries, I directly pick up the notion of executive dominance, i. e. the prominent role of the executive and the very restricted presence of the legislative, in the field.

4.1.3 Sustainability transition

A large-scale political project for the transport sector is the *Verkehrswende* (transport transition, Knie 2014, p. 140; S. Becker and Renn 2019, p. 110; Schwedes 2019). It is situated in the broader context of the striving to shift energy use from fossil to renewable resources and possibly restrict energy use overall, called *Energiewende* in German (which translates as ‘energy transition’, Müller 2015; Schreurs and Steuwer 2015; Radtke and Canzler 2020). In this context, a shift from fuel-based motorised individual transport to non-motorised, shared and public forms of mobility as well as electricity-based technologies are in focus (Schwedes 2018a; Canzler 2020; Holzapfel 2020).

The transport transition reacts to a number of problems that are perceived to plague current transport systems that are dominated by individual motorised transport. The primary concern is for the CO₂ emissions caused by the transport sector, which amount to 14 % of CO₂ emissions worldwide (IPCC 2014, p. 47) and 20 % in Germany (BMWi 2021, p. 122). Emissions of nitrogen oxides and fine particles, noise, land-use, and road accidents are additional problems caused by the transport system (Sachverständigenrat für Umweltfragen 2017, pp. 62–63; Ruhrort 2019, ch. 2.1; Glover and Low 2020, p. 20).

Transport thus causes costs that are usually not internalised (Engartner 2008, p. 213; Whitelegg 2020, pp. 27–32; for an exception see the example of Switzerland in Lauber 2002, p. 157).

Solutions to these problems are sought from a variety of approaches that either aim to avoid transport, to shift it to other modes of transport than the private car, or to improve efficiency (Ruhrt 2019, pp. 29–33). In order to address CO₂ emissions, the use of renewable forms of energy is prioritised, either by reverting to so-called biofuels (Müller-Langer et al. 2014; Pfister and Scherer 2015) or by using vehicles that run on electricity which then, of course, should be generated from sustainable sources (Schweddes 2018a; Hill et al. 2019). This energy-orientation is at first glance agnostic to the transport mode used – as long as they are run on the basis of renewable forms of energy, it is an improvement. Energy efficiency is added as an additional thought, when discriminating between the transport modes, and this leads to calls for a modal shift. As an over-the-thumb rule, rail and waterway transport are more energy efficient than car or truck transport, at least over long distances as well as for large quantities of goods (Wee et al. 2005, p. 12; Kaack et al. 2018, ch. 2.3; Glover and Low 2020, pp. 19–20; however, for a critical assessment: Givoni et al. 2009). As for noise, transport avoidance is the prime solution – which is, of course, true for all transport-related problems – next to technological progress in materials and components that allow less noise-intensive transportation (Nijland et al. 2003, p. 132). Transport safety in the sense of avoiding accidents and fatalities is discussed in terms of technological progress as well but also with regard to differences between the modes of transport – here, rail travel stands out as one of the safest forms of mobility (Wegman 2013, p. 254; Dziekan and Zistel 2018, p. 348). In order to combat land-use problems especially in and around cities, the sharing economy might provide an approach (Akyelken et al. 2018) as well as renewed public transport solutions (Schweddes 2014).

Many of these discussions focus on city areas only. Nitrogen oxides, land-use in terms of parking spaces, and noise are particularly problematic in urban areas (Sachverständigenrat für Umweltfragen 2017, pp. 63–64). Indeed, much everyday mobility is occurring in cities. In such cases, non-motorised transport is an intensively discussed emission-free alternative (Buehler et al. 2017; Pucher and Buehler 2017). However, in the case of Germany, 80 % of all kilometres travelled in passenger transport pertain to long-distance transport (Zimmer et al. 2016, p. 25). By studying decision-making in preparation of the BVWP, this latter transport category is in focus for my analysis.

Encouraging a shift in the modal split, i. e. the distribution of mobility among the transport modes, from road to rail is an old and recurring theme in the striving for a more sustainable transport system. As Rye (2020) remarks: ‘The new paradigm in transport, one that focuses on the need to [among other things] increase the proportion of

trips by other modes, is no longer so new. It has been well-known amongst transport academics [...] for at least three decades [...]’ (Rye 2020, pp. 12–13) Beyond the acknowledgement by ‘transport academics’ (Rye 2020, p. 13), the shift from road to rail transport as one building block of a transport transition is continuously highlighted by transport-transition proponents in the media and environmental bodies (e. g. Sachverständigenrat für Umweltfragen 2017, p. 97; UBA 2020; Busse 2021). It has made it into official sustainability strategies (e. g. Die Bundesregierung 2021, pp. 62–63; European Commission 2020, p. 3), is part of the German law on spatial planning (§ 2 Abs. 2 Nr. 3 ROG, pointed out by Ruhrort 2019, p. 231), and has also been raised with regard to infrastructure planning in the BVWP (Bergk et al. 2017, p. 25). It goes without saying that rail companies also stress their potential to contribute to a more sustainable transport system (e. g. Deutsche Bahn 2020; Nederlandse Spoorwegen 2021; SNCF 2021).

Especially in goods transport, proposals to shift transport from road to rail are no new phenomenon (for the example of Germany dating back to the 1960s/70s: von Beyme 2007, p. 128; Plehwe 2016, p. 324). Rapid increases in transport volumes have exacerbated goal conflicts between micro economic and ecological as well as social goals (Plehwe 2016, pp. 324–327). Rail (and waterway) transport are consistently regarded as more energy efficient than road haulage (Kaack et al. 2018, pp. 3–4). Hindrances for a transition to more rail-based transport are among other things seen in a lack of trans-European rail infrastructure and transaction costs for the coordination with passenger rail services that operate on the same tracks (Plehwe 2016, pp. 324, 334). Disadvantages of rail transport are seen in longer transportation routes as compared to road transport and lacking electric traction on some routes as the use of diesel engines largely offsets environmental benefits (Smith 2003; Wee et al. 2005, p. 8). Hence, infrastructure investments in electric traction as well as in more direct transport routes – and diminishing conflicts with passenger transport – are desirable from a transport-transition point of view.

The implications of a modal shift for infrastructure policy are twofold: Especially for city areas it has been established that both pull and push factors are necessary to produce a modal shift, thus measures encouraging the use of other modes of transport have to be accompanied by measures making car-use less attractive (Schweddes and Ruhrort 2016, p. 226; Ruhrort 2019, pp. 257–261; Rye 2020, p. 7). In parallel to these findings, an infrastructural transport transition requires less infrastructure for modes of transport that are seen as non-conducive to a more sustainable transport system. This means less investments for the expansion of the road network, which is argued to otherwise ‘attract new vehicle trips onto the network’ and even be self-defeating in the attempt to reduce traffic congestions (Rye 2020, pp. 6–7). On the other hand, more and updated infrastructure is required for those modes of transportation that are in line with the envisaged transition, thus rail- and waterways. This means adhering to a ‘principle of strategic consistency’

(Goodwin and Curtis 2020, p. 442) when investing in infrastructure as that can be understood as an indirect subsidy for the respective mode of transport (Glover and Low 2020, p. 20). For the context of my study, this double-notion is reflected in the operationalisation of transition-orientated outputs as put forward in chapter 3.4.1.

4.1.4 Politicisation

Alongside the growing prominence of sustainability-related ideas and the growing urgency of addressing climate change, politicisation of transport infrastructure policy has increased (Bandelow and Kundolf 2018, p. 166). Politicisation implies that parties formulate divergent ideas about the topic as well as it being increasingly subject to public debate (De Wilde 2011, p. 562). The politicisation of transport policy – in the sense of an outcome rather than a process or a deliberate strategy (Feindt et al. 2020, pp. 5–6) – fits the notion that ‘sustainability transitions are inherently political’ (Meadowcroft 2011, p. 71).

Heightened public awareness of transport political topics coincides with increased demands for public participation. The energy transition – as well as a transport transition within it – requires public acceptance for the overall goal as well as for individual infrastructure measures taken (Fraune et al. 2019, pp. 3–4). Thus, public participation is discussed as an integral part of a successful energy transition (Holstenkamp and Radtke 2017, p. 4) and has in general become ‘a mantra in environmental governance’ (Wesselink et al. 2011, p. 2688).

Public participation is, however, also criticised with regard to biased mobilisation and effectiveness. Public participation about infrastructure projects is problematised with regard to the NIMBY phenomenon (‘not in my backyard’), thus the enhanced participation of citizens that are affected locally by a new infrastructure project – even though they might be sympathetic to the overall political goal behind it – while under-representing those that might benefit from the project but are not affected locally (Vatter and Heidelberg 2013, pp. 319–320, 329–330; Lindloff et al. 2017, pp. 92–93). In that sense, public participation entails the risk of pushing local benefits at the cost of the wider population (Fink and Ruffing 2019a, p. 199; for a critical stance on the NIMBY concept see however Devine-Wright 2011, pp. 21–23).

The inclusion of the input from participation processes in decision-making processes comes with its own problems. The expectations of consultation participants and consulting administrations or economic actors do not necessarily go hand in hand. This might lead to frustration, possibly on both sides (for an example from German electricity grid planning: Fink and Ruffing 2019b, p. 235, 2019a, pp. 209–210; for a broader picture with evidence from eleven European countries: Wesselink et al. 2011). What is more, the observation of a normative ‘mantra’ (Wesselink et al. 2011, p. 2688) also entails the risk that

participation procedures are instituted as an institutional isomorphism rather than with a clear idea about how to effectively engage the public (Fink and Ruffing 2015, p. 268). Studying decision-making for the *Bundesverkehrswegeplan* 2030 can add yet another piece to the jigsaw of understanding how and to what effect public participation is used by the executive.

Building on these more general insights of transport infrastructure policy as a complex and largely executive-centred field with rising levels of politicisation, the next section introduces more specifically the field of long-distance road and rail planning in Germany.

4.2 Long-distance road and rail planning in Germany

In German transport infrastructure planning, multi-level relations are a prominent consideration. In Germany, transport infrastructure is a policy field of shared responsibility between the national and the sub-national level, thus, between the federal level, referred to as the *Bund*, and the 16 *Länder*, which are sovereign sub-national units with their own areas of competence.⁹ As a general rule, long-distance infrastructure is the responsibility of the federal level, while regional infrastructure is dealt with by the *Länder*, and local infrastructure is partly taken care of by counties and municipalities. The allocation of responsibility furthermore differs between transport modes. All transport modes witness increasing levels of conflict around large construction projects. In this section, I first introduce the specificities of German long-distance road planning, second give an overview of long-distance rail planning, and last, I return to the challenges brought about by increased public protest.

4.2.1 Long-distance road-planning in Germany

Road transport is the dominant transport mode in Germany (Ruhrt 2019, p. 96). This is little surprising in a country where the car industry is the leading economic sector (Haas 2021, pp. 156–157). Since the 1950s, the individual car has been regarded as a

⁹ The 16 *Länder* can be differentiated into thirteen area states and the three city states Berlin, Bremen, and Hamburg. Each *Land* has its own one-chamber parliament, referred to as *Landtag* in the area states and as House of Representatives or *Bürgerschaft* in the city states, as well as its own government (senate in the city states), which in most cases is a coalition government. Parties forming a coalition agree on a coalition treaty, outlining important policy projects to be undertaken until the next election as well as general policy guidelines for the government. Members of the government are the ministers (or senators in the city states) and the respective head of state. Parliaments are working parliaments with most policy work accomplished in committees. On the federal level, the *Länder* are represented in the second parliamentary chamber, the *Bundesrat*, that has to be consulted on all legislative proceedings and whose approval is required for a number of legislative fields indicated in the constitution, the *Grundgesetz* (Basic Law).

marker of freedom and economic development (Haefeli 2016, pp. 104–105; Ruhrort 2019, pp. 84–85). Ever since, car-friendliness has become a norm in planning cities and settlements (B. Meyer 2016, p. 88). In general, a mobility culture has been established that favours car use over other transport modes and the respective infrastructure has been created in the public space that allows such dominance (Ruhrort 2019, ch. 4 and 7). The availability of the individual car is often taken for granted, so that journeys are at times – especially in more rural areas – impossible to make with other transport modes, creating a ‘car-dependent society’ (Jeekel 2016, p. 212). Such a mobility culture requires good reasons when regulations are seen as infringing on car mobility (Ruhrort 2019, pp. 5–6), which is illustrated nicely by the ongoing debates about the introduction of a general speed limit on motorways (Budrich 2019).

In this sub-section, I introduce some basic background information on long-distance road-planning in Germany (for an elaborate treatment consult Scheller 2018). I concentrate on four aspects: first, the general division of responsibilities for different road classes in Germany, second, the specific management-on-behalf scheme for federal roads, third, the criticism associated with this scheme, and fourth, the sources of capacity that the *Länder* have to fulfil their obligations under this scheme.

The responsibility for road construction and maintenance lies with the public sector and is divided along the different road classes. Federal motorways (*Autobahnen*) and federal highways (*Bundesstraßen*) are in the responsibility of the federal level (FStrG §§ 1 and 5, the English terminology follows the use by the BMVI (2020a)). The *Länder* are responsible for the main country roads (*Landesstraßen*, in Bayern and Sachsen: *Staatsstraßen*), the responsibility for county roads (*Kreisstraßen*) and main through-roads through smaller settlements lies with the counties (StrG §§ 3 and 43 as well as the respective *Land* laws). All remaining roads within municipalities (*Gemeindestraßen*) are in the responsibility of the municipalities (StrG §§ 3 and 44 as well as the respective *Land* laws). The responsible entity has to take care of construction and maintenance and has to ensure a state of the road that is conducive to its safe use (StrG § 9 as well as the respective *Land* laws).

The procedures for expanding and maintaining federal roads are organised in a system of management-on-behalf by the *Länder* for the federal level (called *Auftragsverwaltung* in German). It thus differs from the general scheme of responsibilities. Even though federal roads are within the responsibility of the federal level, the *Länder* manage the planning, construction and maintenance of the federal long-distance roads, i. e. the federal motorways and the federal highways, on behalf of the federal level (Scheller 2018, p. 32) (GG Article 90,3). While the federal level bears the costs for road construction and maintenance, the handling is delegated to the *Länder*.¹⁰

¹⁰ This situation has changed partly since 1st January 2021, when management responsibility for the motorways has been shifted to a newly-established federal motorway agency: *Die Autobahn GmbH des Bundes*

A recurring critique of this system of management-on-behalf by the *Länder* for the federal level is the lack of central planning. This results from the strong role of the *Länder* in implementing road infrastructure policy (Garlichs 1980, p. 123; T. Fischer and Pennekamp 2018, pp. 445–448). According to this reading, the federal level is only formally in charge of long-distance road planning, but loses out to the interests of the *Länder* for two reasons: First, the federal level is averse to conflict, which is mirrored by a fund allocation scheme that relies on quotas according to population figures rather than network-related necessities (Garlichs 1980, p. 137; Reh 1988, p. 288). Second, the federal level lacks the administrative and information capacity that the *Länder* have (Garlichs 1980, pp. 129–130, 137; Wegrich and Hammerschmid 2017, pp. 33–36; T. Fischer and Pennekamp 2018, pp. 447–448). In consequence, the federal level cannot competently judge project proposals made by the *Länder* for investment master plans (Reh 1988, p. 275; T. Fischer and Pennekamp 2018, p. 447). Schwedes and Ruhrort (2016) analyse transport expenditures by the *Länder* and come to the conclusion that despite a lack of federal oversight, there are ‘strong unitary trends’ among the *Länder* (Schwedes and Ruhrort 2016, pp. 222–224) and that the *Länder* have little room for manoeuvre. This is the more plausible as federal funds are often earmarked for a specific purpose and infrastructure projects usually have long-term implications that hinder spontaneous reconsideration.

The federal competence for long-distance road infrastructure thus primarily becomes visible in the distribution of funds. The division of competences between the federal and the sub-national levels is regarded as having provided the *Länder* with incentives to engage in excessive road-building for decades (Petersen and Schallaböck 1995), which contributes to the regular critique of German infrastructure planning and implementation on the side of the Federal Audit Office, the *Bundesrechnungshof* (BRH), that also faults frequent cost-overruns and delays in infrastructure building (Winkelmann 2018).

Given the inherent complexity of infrastructure planning, planning large road projects naturally requires a certain level of staff capacity (Wegrich and Hammerschmid 2017, p. 36). Due to their responsibilities for road planning and construction, the *Länder* have established subordinate authorities to their transport ministries that oversee the respective planning processes (T. Fischer and Pennekamp 2018, p. 442). This takes the form of state offices (*Landesämter*) and state enterprises (*Landesbetriebe*) for transport and/or specifically for road construction. A peculiarity are the two *Autobahndirektionen* in Bayern that add an additional layer between the transport ministry and the state offices. Additionally, today, twelve *Länder* are shareholders of the project management corporation DEGES – initially founded for carrying through the German Unity Transport Projects (*Verkehrsprojekte Deutsche Einheit*, VDE) – that is regularly tasked with the implementation

(BMVI 2019). This is, however, irrelevant for the context of this study as this did not affect the proposal process for the BVWP 2030, which I study here.

of road projects (DEGES 2020). At the time of BVWP 2030 preparation, Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt, Thüringen, Hamburg, Schleswig-Holstein, Bremen, and Hessen held shares, Nordrhein-Westfalen, Baden-Württemberg, and Berlin joined in 2014 (DEGES 2020). There is also a financial burden connected to this management on behalf of the federal level. Even though the *Länder* are reimbursed by the federal level for planning, managing and constructing federal roads, parts of the planning costs usually rest with the *Länder* (Scheller 2018, p. 33). The rates paid by the federal level do not cover the full planning costs which can be up to 20% of total project costs (Bürgerschaft Hamburg 2014; Bundesrechnungshof 2017b, pp. 17–18). Mirroring these considerations, a multi-faceted understanding of capacity will re-appear in my analysis.

4.2.2 Long-distance rail planning in Germany

Project-planning for rail infrastructure is organised very different from that for road infrastructure in Germany. Road and rail infrastructure policy share the interwovenness of federal and sub-national responsibility and funding schemes. For both infrastructure modes, responsibility ultimately lies with the federal level for long-distance infrastructure. However, while for roads, the *Länder* have an important formal part to play, the task of project planning for rail infrastructure is delegated to the state-owned rail company *Deutsche Bahn* (DB) and especially its infrastructure branch *DB Netz AG*. Even though formally clearly set apart, the practical differentiation between federal and *Länder* responsibility for rail infrastructure is not always unanimously clear among the two levels.

I structure this brief introduction of long-distance rail planning in Germany along the following four themes: first, the European level of railway policy, second, the discussions of network liberalisation and privatisation, third, the goal-conflict between a profitability-centred and a public service perspective, and finally the differentiation of responsibilities between the federal and the sub-national level. The first three of these themes already mark an important distinction from the road sector. For the road-sector, infrastructure provision can easily be discussed as a stand-alone topic as the actual transport service, if one wanted to call it thus, can be provided by everyone on an individual – even self-serving – basis (Mietzsch 2021, p. 220). In contrast to that, the discussion for the rail sector takes into account that rail infrastructure as well as rail service provision are organised in a collective manner that has traditionally been state-centred (Bandelow, Lindloff et al. 2016, p. 170). That is why discussions of liberalisation and privatisation are relevant in this area.

The proclaimed ‘European Year of Rail 2021’ is not the first marker of the European Union’s interest in railways. Already in the Maastricht Treaty in 1993, the EU has defined transport corridors that are supposed to connect all parts of the EU, the so-called TEN-T, the trans-european network for transport (Sack 2016, p. 197; Dyrhaug 2013, p. 114).

Shortly after, the Commission has published a ‘strategy for revitalising the Community’s railways’ (European Commission 1996). And even though the TEN-T corridors address all transport modes, the majority of TEN-T projects are rail or combined road-rail projects (Dyrhaug 2013, pp. 114–115). Since 2000, four EU railway packages have aimed at further liberalising the rail sector (Dyrhaug 2013, ch. 4–5). Since 2014, the Connecting Europe Facility (CEF) provides funds for the realisation of trans-European networks (Innovation and Networks Executive Agency 2021).

Railway policy remains on the agenda as one corner stone of a sustainable transport system – both on the national and on the EU level (Dyrhaug 2013, p. 1) – even though railway’s share in overall transport volume has been declining since the middle of the 20th century (van Riesen 2007, pp. 43–45). Historically, i. e. in the pre-car era, railway policy was considered important for industrialisation and nation-building (e. g. Fremdling 1983; Mitchell 2000; Millward 2011; Dyrhaug 2013, p. 15; Haefeli 2016). Today, the European Union strives to boost the rail sector and create a unified railway market with equal access and fair competition (Dyrhaug 2013, p. 2). To that end, the European Union adopted several directives and packages for the liberalisation of the diverse national rail systems, starting with Directive 91/440 in 1991 which demands the separation of railway services from infrastructure management (Lodge 2003, p. 164; Dyrhaug 2013, p. 2; de Francesco and G. Castro 2018, p. 369; Sack 2019, pp. 46–47). The consequences of the subsequent liberalisation attempts have been the dominant theme of Germany-related railway literature for some time (e. g. van Riesen 2007; Engartner 2008) – even though in public discourse, the most discussed question certainly is, why the trains, supposedly, are always late – apparently no uniquely German discursive phenomenon (Dyrhaug 2013, p. vii).

Despite the programmatic willingness to further intra-European connections, cross-border cooperation in infrastructure projects remains difficult. In part, this is due to the long-standing relations between member states and their respective former state rail companies and a lack of a governance structure oriented towards trans-national railways (Dyrhaug 2013, p. 4). This also implies that planning is done on the national level and cost-benefit ratios calculated according to national criteria without regarding the ‘Trans-European added-value’ (van Exel et al. 2002, p. 310; similar also Sack 2016, p. 198). Even for the TEN-T projects, Dyrhaug (2013) notes that many have ‘distinct national undertones’ with the European dimension added strategically for funding reasons (Dyrhaug 2013, p. 116). Additionally, interoperability remains a problem with different national standards for track width, signals etc. (Sack 2016, p. 193). The harmonisation of these technical aspects is largely industry-led (Dyrhaug 2013, pp. 121–123). Thus, despite its engagement, the EU’s relevance for railway infrastructure planning is marginal, while it has contributed to changes in the structure of the railway system as such. In con-

sequence, if the aspect of Europeanisation seems lacking in the analysis put forward here, this simply follows from its lack of relevance for intra-ministerial decision-making (see also C. Fischer 2018, pp. 254, 261) – even though six out of nine TEN-T corridors pass through Germany (European Commission 2021).

Unlike anything in the road sector, the debate about railway planning has been dominated by discussions of network liberalisation and privatisation during the last decades. The system of having all railway-related services and infrastructure under the roof of one national railway was abandoned in Germany in the 1990s. This was done in reaction to financial difficulties on the side of the state railway as well as decreasing shares in transport volume and the necessity to incorporate the former East German state railway (Lodge 2003, p. 170; van Riesen 2007, pp. 89, 94–95; Döhler 2019, p. 212) and by – rather strategically – taking up the spirit of the discussions on EU level in the same time (Teutsch 2001, p. 167; Lodge 2003, pp. 165, 172). Furthermore, privatisation of infrastructures was a general trend at that time (V. Schneider et al. 2005, pp. 704–705), furthered also by a new demand in the federal budget law (Sack 2019, p. 158).

Corner stones of the reform were the foundation of the state-owned but formally private company (Sack 2019, p. 21) *Deutsche Bahn AG* that assumed administrative and business tasks from the former state railway (§§ 1 and 3 DBGrG, law on the foundation of the *Deutsche Bahn*), the – also not immediate – organisational separation of infrastructure and services, liberalisation of market entry for certain types of rail transport, and the shift of responsibility for regional rail to the *Länder* (van Riesen 2007, p. 99). The entire rail infrastructure was formally privatised, however, in a compromise with the *Länder*, the federal level accepted responsibility to guarantee a sufficient rail infrastructure as a public service obligation and agreed that it may not sell a majority of shares in the respective infrastructure company (Lodge 2003, pp. 171–172; van Riesen 2007, pp. 96–98).

Today, planning and building long-distance connections is in the responsibility of *DB Netz* as the infrastructure branch of the *Deutsche Bahn AG* (EBA 2020a). *DB* acts on the basis of agreements with the Federal Republic of Germany (EBA 2020a). The Federal Railway Authority (*Eisenbahnbundesamt*, *EBA*) is tasked with handling permits and exercising control (according to the law on railway administration, § 3 BEVVG, see also: EBA 2020b).

The critical discussion of the formal privatisation of the German state railway and the splitting up of responsibility for rail infrastructure and services reveals a goal conflict. On the one hand, a profitability-centred business perspective is put forward, while on the other hand, railway services are regarded as a public service obligation (Ambrosius 2016, p. 453). On one side, it is argued that extensive state aid – which *DB* still enjoys (Döhler 2019, p. 214) – is criticised as an inhibitor of the development of more competitive companies (Dyrhaug 2013, p. 97). On the other side, it is also pointed out that

general service provision in the rail sector is simply not feasible without heavy financial state engagement (van Riesen 2007, p. 315) at least when it comes to the provision of infrastructure (Sack 2019, p. 46). The trade-off between the two perspectives is apparent: A service-of-general-interest perspective implies that rail services ought to be provided even in cases where profitability – e. g. on little used peripheral transport relations – could not be attained, which is not tenable from a purely economic perspective (Héritier 2001, p. 827; Canzler et al. 2009, p. 335; Dyrhaug 2013, p. 110).

In the handling of railway policy by state authorities, a general-service perspective has so far prevailed in Germany. From the start of the railway reform a pre-programmed lack of profitability has especially applied to regional rail services, and the *Länder* pressured the federal level to uphold the respective funding (van Riesen 2007, p. 96). The goal conflict also becomes obvious when ‘new construction projects were not realised according to profitability, but out of structural policy considerations’ (van Riesen 2007, p. 153). The regular discrepancies between national economic interests and business interests in the rail sector have also been recognised by the Federal Audit Office that accepts the extent of these discrepancies as a reason for higher financial state commitment to certain infrastructure projects (Bundesrechnungshof 2017a, p. 35). Thus, a structural political component to rail infrastructure planning – and the public funding thereof – seems to be generally accepted by German state authorities.

The responsibility for rail is split between the federal level and the *Länder* according to Article 87e of the Basic Law. Accordingly, the federal level is responsible for accommodating the public good in the construction, maintenance, and transport services of and on all federally owned rail infrastructure. The exception to this rule is when regional rail services are concerned (GG Art. 87e). The responsibility for regional rail has been shifted to the *Länder* in 1996 as part of the railway reform in the so-called regionalisation law (RegG § 1). Whether this includes the responsibility for the construction of infrastructure is a matter of ongoing discussion between the *Länder* and the federal level (VMK 2013, agenda item 4.5.6). The *Länder* receive annual funds from the federal level for the purposes of regional rail transport, the so-called *Regionalisierungsmittel*, and can apply for further funds from federal financial support programmes, e. g. according to the Law on Financing Community Transport (*Gemeindeverkehrsfinanzierungsgesetz, GVFG*), which then has to be co-financed by the respective *Land* (GVFG § 4). Other federal support programmes for railway infrastructure might become available from time to time – a current example is the programme to support *Länder* that are particularly affected by the phasing out of lignite and coal (Bundesregierung 2021). From the *Länder* perspective, room of manoeuvre is limited even in the field of regional railways, as federal funds are earmarked for given purposes (Gather 2018, p. 297).

With regard to regional passenger rail, the *Länder* have encompassing competences for rail services (Gather 2018, p. 288). They purchase transport services from rail transport companies and make contracts about the extent and quality of the services required on the respective networks. Thus, information about schedules and rail services run is available solely on the *Länder* level. The internal structure of rail administration differs among the *Länder*. Usually, the transport associations (*Verkehrsverbünde*) serve as planning and implementation entities (e. g. the VBB in Brandenburg and Berlin), some *Länder* have established their own transport companies to pool rail-related tasks and competences (e. g. nah.SH in Schleswig-Holstein). Hence, capacity sources for railway policy are more to be sought in the relations to these associations and companies.

An important share of transportation demands for railways comes from goods transport. Like for long-distance passenger transport, the responsibility for building the respective infrastructure is situated at the federal level. The responsibility for the transport services for goods transport are entirely in private hands. The infrastructure used is the same as for passenger transport. An exception is the infrastructure for the rather short distances on business premises, that is neither owned nor built by the state and used exclusively for goods transport (industrial railways according to § 2 Nr. 8 AEG (general railway law), or non-federally owned public railway infrastructure according to § 3 AEG like the Hamburg Port Railway: Hamburg Port Authority 2021).

4.2.3 Public participation in infrastructure planning in Germany

As indicated already earlier, public participation has become a cornerstone of infrastructure planning processes, and this of course impacts long-distance road and rail planning in Germany. For all modes of transport – road, rail and waterways – public protests against large infrastructure projects have grown and sparked an intensified discussion about public participation in infrastructure planning. A watershed in the German discussion have been the protests against the train station project *Stuttgart 21* that gained countrywide attention (Glaab 2019, p. 106). In 2010, these protests escalated in a clash between protesters and police, the latter being later ruled by the Administrative Court Stuttgart to have acted against the law and made inadequate use of force (verdict from 18/11/2015, number 5 K 1265/14).¹¹ The *Stuttgart 21* protests are seen as landmark case

¹¹ The train station project *Stuttgart 21* is part of a larger rail infrastructure project that involves ‘restructuring of the Stuttgart rail node’ as well as building a new high-speed line in the south west of Germany (DB Projekt Stuttgart–Ulm GmbH 2021). At the heart of the protests has been the reconstruction of the central train station of the city of Stuttgart (Henzler 2020) that is to be ‘converted from a terminus where trains end into a through station’ (DB Projekt Stuttgart–Ulm GmbH 2021). Critics claim that the planned train station would have too little capacity (Henzler 2020) as well as suffering from serious constructional faults (Michel 2012), besides being too expensive (Balsler, Kelnberger et al. 2017) and ruining the original train station that is listed as a historic monument (Braun 2010). In 2011, thus, after

that brought attention to ‘the desire of citizens to be granted a say in societally and politically relevant projects also beyond electoral decisions.’ (own translation of Vatter and Heidelberger 2013, p. 317)

Even without such dramatic events, protest and legal measures taken by citizens and organisations have become commonplace in the context of large infrastructure projects (Vatter and Heidelberger 2013, p. 318). This was taken as a cue that existing representative and participation institutions were not working well in this regard (Brettschneider 2018) or that they addressed the public too late, i. e. when decisions were already made and public participation could no longer signal emerging problems (Heuser and Reh 2016, p. 261; Schweizer et al. 2016).

Several measures have been taken to address this. In November 2012, the federal ministry of transport has published a ‘Manual for Good Public Participation’ (BMVI 2014b). In May 2013, the law on administrative procedures (*Verwaltungsverfahrensgesetz*, VwVfG) was amended to include a paragraph that makes public participation in early planning stages of large infrastructure projects (and not only there) obligatory (VwVfG § 25,3 as amended by PIVereinG article 3b). The new regulation thus complements the participation requirements later in the process e. g. according to the law on environmental impact assessment (*Gesetz über die Umweltverträglichkeitsprüfung*, UVPG § 18). These changes are not directly relevant for the subject under study here as they address later stages of the planning process. Still – and this is important for my study as well –, they document an increasing awareness of participation demands on the side of state actors.

The long-term horizon for both road and rail planning, is strategically summarised in the federal transport infrastructure plan (BVWP). The next section introduces this type of document as well as outlining the procedures around the most recent version.

4.3 The federal transport infrastructure plan (BVWP)

The BVWP is a transport infrastructure strategy by the federal government. As such, it has no legal character but provides a template for the lists of federally fundable projects in the annexes to the infrastructure extension laws. This section, first, briefly situates the BVWP within the wider planning framework for federally owned infrastructure, second, summarises the knowledge that there is up to date from a political-science perspective on the BVWP in general, and third, provides an overview of the general set-up of the procedure leading up to the currently valid BVWP 2030.

the escalation of the protests, a newly elected *Land* government, headed by the Green party, held a referendum in the *Land* of Baden-Württemberg on whether to abrogate the financial agreement for the project, and a majority of 59 % voted ‘No’, thus taking a stance for the project (Vatter and Heidelberger 2013, p. 318). Since then, construction works as well as smaller-scale protests have been ongoing.

4.3.1 Planning framework for federally owned infrastructure

The BVWP is situated within the wider planning framework for federally owned infrastructure (for an overview see BMVI 2016f, p. 22). The projects listed in the BVWP are to an overwhelming extent included in the requirement plans (*Bedarfspläne*) which then become an appendix to the infrastructure upgrading acts for roads and railways (*Ausbaugesetze*, FStrAbG for roads and BSWAG for rail) passed by the *Bundestag* (Scheller 2018, p. 28) – changes in the project lists during the legislative process are possible but scarce.

The requirement plans are legally relevant for determining which projects are eligible for federal funding. The BVWP itself is not a law. It, however, prepares the decisions on which infrastructure projects may enter the actual planning process and are finally eligible for receiving federal funds. On the basis of the infrastructure expansion laws, the federal ministry for transport devises five-year investment plans (*Investitionsrahmenpläne*) that detail which projects are eligible for funding in the respective period (BMVI 2020b, p. 9). Only in exceptional cases can federal money also be granted for projects that are not listed in the requirement plans (FStrAbG § 6 and BSWAG § 6).

The way from enlisting a project in the BVWP to actual construction is rather long and can take decades. Therefore and to react to intermediate changes in transportation demands and overall environmental circumstances, the requirement plans are put to review and are updated every five years (FStrAbG § 4 and BSWAG § 4). Inclusion in the requirement plan means that the *Länder* may go ahead with planning the project, thus, there is a general legal basis for building. The projects then have to go through the plan approval procedure (*Planfeststellungsverfahren*) mandated for infrastructure measures in Germany (FStrG § 17 for road and AEG § 18 for rail). Even in this stage, it is still possible that a project is altogether cancelled when circumstances have changed in the meantime (Heuser and Reh 2007, p. 227).

Since the 1990s, the BVWP has been prepared every ten to fifteen years. It is developed on the basis of project proposals that are handed in by the federal states and other actors and which are then assessed on the federal level. The first BVWP for the three modes of transport infrastructure road, railway, and waterways was presented in 1980/81 and updated in 1985/86 (Heuser and Reh 2007, p. 234). Previous master plans had solely concentrated on road infrastructure since 1957 (Heuser and Reh 2007, p. 227), but already had some of the characteristics of the later BVWPs, most notably the two-step of *Länder* proposals and federal selection among those (Reh 1988, p. 286). The first BVWP for the re-unified Germany was adopted in 1992. Switching then to the now conventional pace of preparing a new BVWP every ten to fifteen years, the predecessor of the now valid BVWP was adopted in 2003. The BVWPs were usually known by their year of adoption (thus, BVWP 2003 etc.), the BVWP 2030 is instead named for its expected expiration

date – initially, it was referred to as BVWP 2015 but it became increasingly clear that an adoption in 2015 was unrealistic as the assessment process took longer than expected.

4.3.2 The political-science perspective on the BVWPs

The institution BVWP has drawn little interest from political science so far. The earliest treatment of the BVWP as a whole is the chapter on the BVWP by Heuser and Reh (2007) in the first edition of the *Handbuch Verkehrspolitik* (handbook on transport policy, Schöller et al. 2007), while Reh (1988) already treats the road part of the two first BVWPs. C. Fischer (2018) studies multi-level relations in the context of the BVWPs 1992 and 2003 for the examples of Brandenburg and Nordrhein-Westfalen and is the first to engage more with the *Länder* perspective. Heuser and Reh (2016) update their chapter for the 2016 edition of the handbook on transport policy (Schwedde, Canzler et al. 2016) and outline future demands for transport infrastructure planning (Heuser and Reh 2016).¹² Fichert (2017) compares federal transport master plans over time including the BVWPs and provides a brief assessment of the BVWP 2030. I outline the main findings of these works along five common themes: first, joint decision-making, second, a lack of central planning and steering, third, changes over time, fourth, executive dominance, and fifth, limited politicisation.

The BVWP has been studied under the perspective of joint decision-making. The preparation of a BVWP is an example of hierarchical joint decision-making with a first phase of arguing between the levels, while at a later stage bargaining prevails (C. Fischer 2018, p. 252). Reh (1988) finds that the efficiency of the process is hampered by problems in choosing the appropriate level for problem-solving, a lack of active distribution, and inconsistent patterns of interaction in and between the levels (Reh 1988, pp. 286–292). However, C. Fischer (2018) argues that the discrepancies between nominally being a federal strategy and the de-facto influence of the *Länder* damages the credibility of the BVWP rather than making the process inefficient (C. Fischer 2018, p. 261). While long-distance infrastructure planning formally is in the sole responsibility of the federal level, at least road infrastructure planning has displayed ‘procedural similarities’ to joint tasks (*Gemeinschaftsaufgaben*) (own translation, Garlich 1980, p. 123) that are formally characterised by executive and financial co-operation between the federal level and the *Länder* (Art. 91a GG).

A recurring critique raised against the BVWP process is the lack of central planning and steering. While the federal level in principle could use its financial sovereignty to

¹² The chapters by Heuser and Reh are certainly shaped by their affiliation with the environmental NGO BUND, Reh has from 2005 to 2018 been its head of division for transport policy, Heuser has been the general manager of the BUND division in Berlin since 2005. This being said, their chapters nevertheless provide one of the rare treatments of the BVWP available.

engage in target-oriented distribution of funds, it refrains from doing so and uses population figures as a rough criterion for fund allocation (Reh 1988, p. 288; Heuser and Reh 2007, p. 228). This is interpreted as a marker of the federal level's averseness to conflict with the *Länder* (Heuser and Reh 2007, p. 235; C. Fischer 2018, pp. 260–261). The formal federal commitment, dating back to 1979, to less new road constructions is not mirrored by the planning outcomes (Reh 1988, p. 283; C. Fischer 2018, pp. 260–261). Instead, the interests of the *Länder* in 'prestige and parish-pump projects' dominate rather than the transport needs in the overall network (own translation, C. Fischer 2018, p. 273; Heuser and Reh 2016, pp. 258–261; similar also: Reh 1988, p. 286; and with a focus on rail projects: Heuser and Reh 2007, p. 243).

The BVWP processes over time have seen more technical than substantive changes. The assessment framework that the federal level would use to check and prioritise the projects proposed by the *Länder* has been refined and harmonised between the transport modes over time (Reh 1988, p. 130; Heuser and Reh 2007, pp. 239–240). Still, innovations like the inclusion of environmental criteria had little effect on project choice (Heuser and Reh 2007, pp. 241–243), transport planning remained sectorally oriented (Heuser and Reh 2007, 2016, p. 262) with a focus on road infrastructure (Heuser and Reh 2007, pp. 239–240). Continuously, BVWPs tend to be underfinanced and overburdened with projects, thus enlisting more projects than could possibly be financed, let alone built within the envisaged period of time (Heuser and Reh 2016, p. 262; Fichert 2017, p. 28). Heuser and Reh (2007) speak of 'wish list thinking' (own translation, Heuser and Reh 2007, pp. 236–237). C. Fischer (2018) points out the contrast between an increasingly complex framework and a lack of actual scope for new developments – the reason for this antagonism is that the financial means are restricted and to a large extent already pre-planned for long-standing projects (C. Fischer 2018, p. 261).

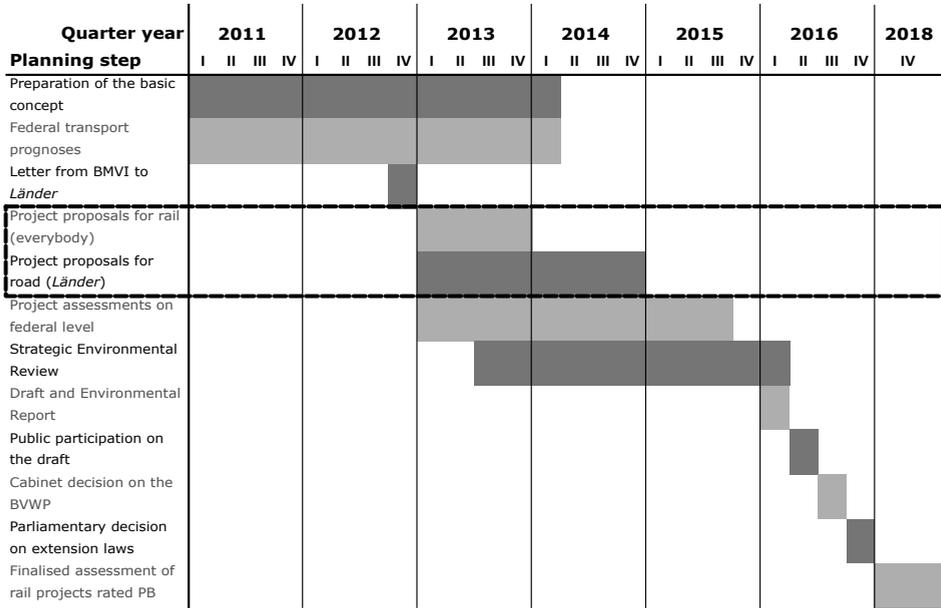
The BVWP process is dominated by the executive and experts. Within the *Länder*, the responsible ministry is the main player in determining the projects that the respective *Land* wishes to see included in the BVWP (C. Fischer 2018, pp. 260–261). The process is seen as dominated by actors from bureaucracy, science and technology, especially transport engineers and transport economists, that insulate the field against political discussion (Heuser and Reh 2007, p. 226, 2016, p. 258). In this context, Heuser and Reh (2007) claim that scientific input was used strategically in order to maximise budgets for the respective sector rather than for aiming for an integrated transport system (Heuser and Reh 2007, p. 246). In case studies of the *Länder* Nordrhein-Westfalen and Brandenburg, C. Fischer (2018) has found that a well-conceived concept for project choice might indeed provide a *Land* with a more favourable position for having its projects included in the BVWP (C. Fischer 2018, pp. 255–256).

The BVWP process is characterised by very limited politicisation. On the federal level, changing party-compositions of the federal government indeed do make a difference for transport policy positions, but have little effect on the policy output especially in terms of infrastructure (Fichert 2017, p. 28; specifically for the BVWP 2003 also: Heuser and Reh 2007, pp. 237–238). Party political parallels between *Land* and federal level surely do not hurt a *Land*'s interest but are not decisive in this context (C. Fischer 2018, p. 256). Public participation and transparency were found lacking in most of the BVWP processes so far (Heuser and Reh 2007, pp. 247–248). Since the early years of BVWP preparation, the most relevant avenue for public opinions to leak into the process has resulted from a greater openness by the municipal level to take up cues from citizen initiatives – especially negative statements by municipalities carry considerable weight for *Land* and federal decisions whether to pursue a project further (Reh 1988, pp. 291–292). The processes in the *Länder* vary in their readiness to engage the public and to take into account ecological and social criteria (Reh 1988, pp. 282–283; Heuser and Reh 2016, p. 258).

The BVWP has so far been studied as an endeavour in multi-level policy-making with a focus on the federal level. This makes sense, as the BVWP is a federal strategy for infrastructure in federal responsibility. Still, this focus comes with the caveat that the founding step for choosing BVWP projects is little understood, namely the proposal stage within the *Länder*. Before using the proposal stage of the BVWP 2030 as a provider of cases for the remainder of this thesis, I outline some background information on the BVWP 2030.

4.3.3 The process of preparing the BVWP 2030

The overall time frame of BVWP preparation spans more than five years. From 2011 onwards, the decision-making process for the currently valid BVWP 2030 was derived in a renewed planning framework, which itself had been put to ample consultation and discussion beforehand (BMVI 2016d). Following a couple of information events by the federal level, the proposal stage for the BVWP was initiated (BMVBS 2011). The *Länder* were asked to hand in their project proposals in 2013/2014 (BMVBS 2012c,b). The assessment and adoption process then lasted until late 2016. Figure 4.1 on the next page summarises the timeline for the BVWP 2030. Due to the different competences for the two transport modes, a differentiation between road and rail projects is warranted in the following description that otherwise follows the timeline of the process: first, projects were proposed – mostly – by the *Länder*, second, the federal ministry of transport (BMVBS at that time) oversaw the consolidation and assessment process on the federal level, third, a draft version of the BVWP 2030 was put to public consultation, fourth, the BVWP 2030 and the infrastructure extension laws were adopted.



 focus of this study

Figure 4.1: Timeline of BVWP 2030 preparation

Requirements for road project proposals were markedly more demanding than for previous BVWPs. While there was no mandatory framework, how the *Länder* were to select their projects, there were sophisticated requirements for the data they had to deliver. In essence, a rough pre-planning was needed in order to propose a project for the BVWP (BMVBS 2012c). Given these high demands, the *Länder* were the only ones asked to hand in project proposals for roads (BMVI 2018a). Third parties could at maximum address the respective *Land* ministry or contact the federal ministry with their proposal, which might or might not then ask the respective *Land* to prepare a formal project proposal. All in all, the *Länder* proposed 1,864 road projects for the BVWP, 161 of those were already ongoing and would not be assessed anew (BMVI 2014c).

Unlike in the procedure for road projects, everyone was entitled to propose rail projects for the BVWP (BMVI 2018a). The requirements were less strict than for road projects. Even the respective form for the *Länder* did only ask for the name of the project, a description as well as a justification for its necessity. Other information like expansion parameters, assessment of alternatives, effects on the environment and regional development could be filled in as well, but this was not obligatory (BMVBS 2012a). This resulted in 442 projects being proposed (BMVI 2016c), some of which were combined so that

there were roughly 350 projects to consider (own calculations based on BMVI 2016b,e; and BMVI 2018b).

On the federal level, the BMVBS then took a number of steps to arrive at a list of projects to be included in the BVWP. In a first step, the proposals by the *Länder* and others were consolidated, so that each project would appear only once and related projects were matched. Then, a cost-benefit analysis was carried out. To that end, each project was checked for its contribution to transport flows relying on transport and traffic integration forecasts (BMVI 2016b, p. 9). Costs and benefits were each expressed in financial terms – while this might seem straightforward for construction costs, it meant translating also changes in travel times or noise exposure into monetary sums. Furthermore, environmental impact and effects on regional development were assessed (BMVI 2016b, p. 9). The federal ministry commissioned several external engineering offices with these tasks (BMVI 2016b, p. III). Beforehand, a number of prognoses and analyses had been carried out e. g. on bottlenecks on motorways (BMVI 2016b, p. 8, 2018a). Projects that were found to be economically deficient – thus having higher costs than benefits (Scheller 2018, p. 30) – were rejected. All successfully reviewed projects were assigned to different categories of urgency: *Vordringlicher Bedarf – Engpassbeseitigung (VB-E)* (high priority for elimination of bottlenecks), *Vordringlicher Bedarf (VB)* (high priority), *Weiterer Bedarf mit Planungsrecht (WB*)* (other projects with development rights), and *Weiterer Bedarf (WB)* (other projects) (BMVI 2018a).

The categorisation according to urgency follows from limited financial means available (Heuser and Reh 2007, p. 227). The total investment volume of the BVWP 2030 amounts to 269.9 billion Euro. 132.8 billion Euro are dedicated to road infrastructure (1,629 projects, among those 190 ongoing), 112.3 billion to rail projects (initially 63, now 92 projects, among those 37 ongoing) (Monse 2017, p. 33). A national prioritisation concept prescribes preferential treatment for infrastructure extension projects in contrast to new constructions (BMVI 2016b, p. III). More prominently than before, maintenance costs are also included in the BVWP (Fichert 2017, p. 28). These costs are forecast to rise for all types of infrastructure (BMVI 2016b, p. 14).

A draft version of the BVWP 2030 was put to public consultation. Citizens as well as public authorities and organisations from Germany and neighbouring countries could voice their concerns in this process. 39,000 such statements have been collected during the process (BMVI 2016a, p. 2). Some technical and legal contributions were included into the final plan (BMVI 2018a). The consultation procedure did however not aim at consensus. Even though general acceptance is acknowledged as a goal, priority lies with the contribution to a technically adequate solution (BMVI 2014b, p. 32; Monse 2017, pp. 35, 37). A certain friction was in a sense pre-programmed, considering that cost-benefit calculations according to economic standards often fail to ‘reflect [...] subjective

definitions and weights of costs and benefits' as perceived by the public (Lindloff et al. 2017, p. 111).

The consolidated BVWP was adopted by the federal cabinet as federal transport infrastructure strategy (BMVI 2016b, p. 9). The project lists were included as appendices in the new infrastructure expansion laws adopted by the Bundestag in 2016. Quite unusually, the assessment of rail projects was not even fully completed when the BVWP and the expansion laws were adopted. Forty (in the end: 44) rail projects had been assigned to the new category *Potentieller Bedarf (PB)* (projects with potential priority) that could still rise to the category of high-priority projects if assessed positively (BMVI 2016b, pp. 167–169). The assessment of these projects in interim storage was completed in November 2018, and 29 additional projects were added to the category of high-priority projects (BMVI 2018b).

In the understanding of the BVWP process, a gap remains. While the derivation of the BVWP is quite well documented from the side of the *Bundesministerium für Verkehr und Infrastruktur* (BMVI), the process by which the federal states arrive at their proposals is much less clear. Piecemeal information is available, e. g. about the introduction of new simulation and 3-D modelling software in the proposal processes for road projects in Nordrhein-Westfalen and Baden-Württemberg (Appelt et al. 2015), or from mentions of public consultations in the preparatory process on ministries' websites (e. g. Ministerium für Verkehr Baden-Württemberg 2016a). The environmental NGO BUND comments on its own role in the proposal derivation process and summarises the reactions of the federal states (BUND 2014).

The final section of this chapter recapitulates the main issues that have been addressed in the preceding sections and outlines the empirical contribution of this thesis.

4.4 Key points and empirical contribution

This chapter has covered quite some ground. It started with some general discussions of infrastructure planning, and then moved on to the specificities of German long-distance transport infrastructure planning as well as the process of preparing the BVWP as a federal transport infrastructure master plan. This section brings together some key points that are worth bearing in mind for the ensuing analysis. Adding to that, I spell out the empirical contribution that this thesis makes to the study of infrastructure planning in Germany.

In general, infrastructure planning gives the impression of a highly technical field (Bandelow, Lindloff et al. 2016, pp. 171–175) that has, however, come under increasing public scrutiny (Fraune et al. 2019, pp. 3–4). Due to its complexity (Wegrich and Hammerschmid 2017, pp. 27–28), infrastructure planning is prone to being dominated

by experts and executive state actors (Bandelow, Lindloff et al. 2016, pp. 171–172). For a long time, this was also mirrored by a lack of politicisation (Bandelow, Lindloff et al. 2016, p. 165). This has changed as attempts to create more sustainable energy and transport systems have gained political momentum (Meadowcroft 2011, p. 71). The striving for a modal shift away from car-centred mobility is one strand of the attempt to increase the sustainability of the transport system (Rye 2020, pp. 12–13). This requires, among other things, a deliberate re-orientation of infrastructure extension. Large infrastructure projects of all kinds have come to meet public protests against their execution (Vatter and Heidelberger 2013, p. 318). This impacted planning processes insofar that public participation steps are now regularly integrated and widely expected (Wesselink et al. 2011, p. 2688).

Infrastructure planning in Germany is characterised by a division of competences between the federal and the sub-national *Länder* level. For the road sector, the most striking characteristic is that the sub-national *Länder* manage federal roads on behalf of the federal level (Scheller 2018, p. 32) and therefore have considerable capacity in the field of road planning, construction, and maintenance (T. Fischer and Pennekamp 2018, p. 442). In the rail sector, the federal level and the rail company DB are the decisive players for long-distance infrastructure, while the *Länder* take care of regional rail. The differentiation between long-distance and regional rail as well as the obligations of the federal level to provide infrastructure for the latter is however contested between the two state levels (VMK 2013, agenda item 4.5.6).

The BVWP is the federal master plan for infrastructure planning. It is supposed to present a federal strategy for infrastructure expansion for a time-frame of ten to fifteen years and lists the infrastructure projects that are supposed to be built during this time. The BVWP is seen rather critically in the scant literature dealing with it. Recurring points of criticism are the inclusion of an unrealistic number of projects relative to the funds available (Heuser and Reh 2016, p. 262; Fichert 2017, p. 28), a clear federal strategy is found wanting (Heuser and Reh 2007, p. 235; C. Fischer 2018, pp. 260–261), instead it has been argued that the *Länder* dominate the decisions about which projects to include in the BVWP (C. Fischer 2018, pp. 260–261).

In this thesis, I complement the existing works on the BVWP by studying decision-making on the *Länder* level. The role of the *Länder* in the BVWP procedure is generally acknowledged and understood as far as it concerns the interaction with the federal level (e. g. C. Fischer 2018). In the same time, it remains unclear, how the *Länder* arrive at their proposals that they then hand over to the federal level and that form the basis for the further BVWP procedure. Besides this empirical question directly related to the BVWP, the *Länder* level also provides a setting for studying ministerial decision-making with many external conditions held constant. Before a background of calls for a transport trans-

ition, a better understanding of decision-making processes at the working level seems desirable.

To date, there is no comprehensive overview over how exactly the federal states derive their proposals. The dissertation by C. Fischer (2018), that studies the former BVWPs, comes close for the cases of Brandenburg and Nordrhein-Westfalen, but ultimately also focusses on the coordination between national and federal state level after the proposals have been submitted. Thus, the founding step of the whole process – i. e. the derivation of proposals – remains unexplained. This is the empirical gap which this thesis seeks to fill, thereby addressing the call that ‘any attempt to improve infrastructure governance needs to be based on a realistic understanding of how decisions are made in practice’ (Wegrich, Hammerschmid and Kostka 2017, p. 6).

The following two chapters analyse intra-ministerial decision-making about project proposals for the BVWP on the *Länder* level. They shed light on how these decision-making processes are structured and what role process characteristics, party positions and multi-level relations play in determining the output of intra-ministerial decision-making.

5 Content analysis

The overall questions that this analysis tries to shed light on, are: How do perceived topics salience and administrative capacity shape the procedural set-up of intra-ministerial decision-making? What circumstances are conducive for ministries to produce transition-oriented outputs? The example at hand is the preparation of proposals for the BVWP 2030 in the *Länder* ministries of transport within the German multi-level framework. The potential for diverging from a given status-quo in transport infrastructure policy towards a transition orientation involved two things in this context:

- reducing proposals for road expansion
- increasing proposals for rail expansion

The analysis of intra-ministerial decision-making in sub-national ministries about projects to propose for the BVWP 2030 proceeds in two steps: In a first step, the empirical material is structured by subjecting it to a qualitative content analysis and developing a scheme of categories that give an overview of the variety of the cases as well as

some overarching patterns. In the second step, QCA will be employed in order to derive more general explanatory patterns that transcend the individual cases. It will serve to identify combinations of conditions that are necessary or sufficient for achieving a complex decision-making process and for arriving at an output that points beyond a car-centred status-quo. The calibration of conditions will be informed by the results of the qualitative content analysis. Both steps together allow conclusions about the interrelations of programmatic positions, decision-making processes, and outputs.

This chapter presents the first analytical step of the empirical analysis. It structures the material at hand by subjecting it to a qualitative content analysis. It combines deductively derived categories with inductively derived sub-categories, and thereby links theoretical input with insights from the material itself. Consequently, the following pages give an account of to what extent and in what form the theoretical concepts discussed show up in the empirical material. As an intermediary result, this section determines the empirical relevance of the theoretical considerations.

The factors of influence discussed in the theory chapter – parties' programmatic position on transport infrastructure, salience of the topic, multi-level relations, political and technical structure of the process, administrative capacity, external actors – have formed the basis for structuring the analytical material. The material has been scrutinised for passages relating to each of the respective categories. Subcategories have then been developed inductively from the documents and interviews at hand. If a newly-identified subcategory proved useful beyond its original source, it was retained, if not, it was adapted and re-checked against further cases.

Each theoretically derived code is presented with its sub-codes and discussed in light of its relevance for intra-ministerial decision-making in the context of the *Länder*. The tables in this chapter list the codes and sub-codes together with coding examples that have been used as anchors.¹³ Each code appears in a positive and a negative form, meaning that the concept in question can be present or absent, confirmed or rejected by the interviewees and the material¹⁴. Consequently, the anchoring examples presented below serve a double function: They illustrate how the material has been coded, and in the same time they illuminate the bandwidth of empirically observable characteristics.

As an interim conclusion, this first analytical step confirms that programmatic position, salience, administrative capacity, and the diverse process-related characteristics are in principle able to capture differences between the cases – even though at times only within a limited range. In the same time, it questions the expectation of sizeable influences of many of these characteristics when regarded on their own. For the second analytical step targeted at general patterns, this first analysis therefore gives reason to

¹³ All examples are originally in German. Translations are my own.

¹⁴ 'Positive' and 'negative' should not be interpreted as normative statements.

propose a broad understanding of administrative capacity, as well as an integrated view of process characteristics in terms of process complexity.

5.1 Programmatic position

Programmatic positions of parties are the first category to be studied here, as there is reason to believe, that ministerial outputs are first and foremost shaped by the policy preferences held by the respective minister as a representative of their party (Laver and Shepsle 1990, p. 874). I follow a common approach to measure party positions by using election manifestos (Bräuninger et al. 2012). Programmatic positions can be spelled out explicitly or be implicit in the political projects advertised in the election programme.

The empirical material for obtaining the minister's respective party position consists of the respective party's last election programme before mid-2013. In this clear linkage between theoretical consideration and empirical material, this section differs from all the others, which tend to combine different kinds of documents. The approach of inferring policy positions from election programmes alone is, however, well-established (Benoit et al. 2009; Bräuninger et al. 2012). Table 5.1 on the following page brings together the sub-categories for assessing a party's position with respective examples from the documents.

In terms of explicit positioning, there is a certain skewness to the advantage of rail: While the Greens (Bündnis90/Die Grünen), who headed the transport ministries in Baden-Württemberg and Bremen, openly call for a transport transition and question the desirability of the expansion of road infrastructure, no party takes a position openly against the expansion of rail networks – rail expansion at that time is thus an issue with generally high valence within the broader general appraisal of sustainability (R. H. Cox and Béland 2013). Still, there are cases where at least the idea of a very clear transport transition is rejected and thus demanded that the road-oriented status-quo be respected – be it for economic reasons, or out of considerations of feasibility in more sparsely populated areas. An example from the Saarland might illustrate this point: 'The car industry, including its suppliers, is the largest employer in the Saarland and provides employment and a livelihood to a zillion of people [...] Especially in the rural regions of our *Land*, the car remains an indispensable part of our mobility needs.' (SPD Saarland 2012) This emphasises that policy positions are *Land* specific, rather than party-family specific, and react to the respective economic circumstances (Kropp 2010, p. 75; Heinemann et al. 2015, p. 681; Fink, Bartels et al. 2019).

While the expansion of rail infrastructure is thus commonly accepted, in the case of road infrastructure, critical voices are indeed found that call for a restriction of road infrastructure expansion. The most road-critical voices come from the Green party who would e. g. state: 'We want to achieve an end of oversized road building in Bremen and

Table 5.1: Election programmes of ministers' parties: Subcategories and anchoring examples

Positions in election programmes of ministers' parties		
Sub-code	Positive	Negative
clear positioning for rail transport	'That would be a substantial contribution to a transport transition from road to rail.' (BÜNDNIS 90/DIE GRÜNEN BW 2011)	'That is reason enough that a political programme of vilification of car mobility is out of the question for us.' (SPD Saarland 2012)
clear positioning for road transport	'The bulk of transport activity is happening on the roads.' (FDP Hessen 2009)	'It is our aim, to considerably raise the share of this environmentally friendly mobility and reduce car transport in the inner city and residential areas.' (Bündnis90/DieGrünen Bremen 2011)
demand for rail infrastructure expansion	'Sachsen must not be decoupled from high-speed rail transport. Rail transport in Sachsen still has enormous infrastructure gaps.' (FDP Sachsen 2009)	—
demand for road infrastructure expansion	'The expansion of ringroads is expedited further.' (CDU Thüringen 2009)	'The money had often been used to build entirely unnecessary and excessive roads.' (BÜNDNIS 90/DIE GRÜNEN BW 2011)
specification of rail projects	'The federal level is obligated to expand the infrastructure between Saarbrücken and Mannheim.' (SPD Saarland 2012)	'We reject [the rail project] "Suttgart 21" and the high-speed connection Wendlingen am Neckar–Ulm in their currently planned form [...]' (BÜNDNIS 90/DIE GRÜNEN BW 2011)
specification of road projects	'Further down the [federal road] B 169 the connection of Riesa to the [federal highway] A 4 is to be realized near Döbeln.' (FDP Sachsen 2009)	'In Kattenturm, the construction of a cross-connection to the [road] Kattenturmer Heerstraße in the area of the second construction phase of [highway] A 281 will not be possible with us.' (Bündnis90/DieGrünen Bremen 2011)

Bremerhaven.’ (Bündnis90/DieGrünen Bremen 2011, p. 28). Still, a full-stop to road building is not called for by any party. This greater readiness to expand rail infrastructure than to restrict road building mirrors the distinction between ‘welfare production and distribution’, which implies that it is relatively easy to agree that rail expansion is beneficial but the actual allocation of scarce resources – meaning that some (road) projects might not be funded – is more contentious (Scharpf 1997, p. 15).

Criticism directed at individual projects is not generalised to rejection of the respective infrastructure mode more broadly. This is especially visible in the rail sector. The most prominent example here is the train station project Stuttgart 21 (which is not as such relevant for the BVWP) together with the rail-road between the towns Stuttgart and Ulm (which is relevant for the BVWP). This project is seen very critical by the Green party in Baden-Württemberg, still, the same party advocated strongly for more rail-based transport in general (BÜNDNIS 90/DIE GRÜNEN BW 2011, pp. 86–89).

All in all, the different policy positions of transport ministers’ parties in the *Länder* give reason to expect divergent outcomes between the cases. Unlike what partisan hypothesis would imply, it is not neatly possible to identify clusters of parties along a spectrum of pro-rail vs. pro-road positions. Whereas the positions of the Green party in the two *Länder* where they hold the ministry of transport can indeed be summarised as rail-friendly and rather road-critical, such a categorisation is not possible for all other parties. Here, the positions of the individual *Land* parties vary between rail-oriented and road-affirmative also in response to perceived regional complexities and problems (for a similar finding with respect to electricity grid expansion see Fink, Bartels et al. 2019).

5.2 Saliency

Saliency here refers to the relative weight that is attributed to a political issue by the respective minister (Warntjen 2012, p. 169). It is therefore expected to shape whether and with how much urgency the respective issue is addressed. The rationale behind including saliency in this analysis relates to its potential to shape the decision-making process. The literature argues that salient topics are more shaped by politicians, while bureaucrats have more leeway in deciding non-salient topics (Bækgaard, Blom-Hansen et al. 2015, pp. 469–470). I challenge this view with a new argument that salient topics require especially broadly accepted solutions and will therefore be made under less direct political control.

Evidence from the interviews and other documents allows gauging de-facto prioritisation by the political personnel. This appears adequate as the theoretical argument on the effects of saliency relies solely on the importance of a given topic from the perspective of ministerial actors. Consequently, measures commonly used for public saliency like public opinion data (Rasmussen et al. 2014) or media coverage (Røed and Wøien Hansen

2018) are not taken into account as they are likely to capture a different phenomenon than would the data from the interviews (Warntjen 2012, p. 180). The sub-categories capturing salience as perceived by ministries and the respective anchoring examples can be found in table 5.2 on the next page.

As an additional source, and following a common path, salience is captured by the relative lengths of transport related parts in election programmes and coalition agreements overall (not counting air and water transport), and more specifically for long-distance road and rail infrastructure, respectively. Departing from the more fine-grained approach by the Comparative Manifesto Project, that relies on the percentage of quasi-sentences per category in the overall document (Volkens et al. 2020), I follow studies using a simpler variant in relying on section length instead (Pappi and Seher 2009). The respective percentages are provided in table 5.3 on page 136.

Interpreting the numerical representation of transport policy in the election manifestos and coalition agreements comes with a caveat. Salience as such is a relative measure that needs to be compared against another salience in order to be sensibly interpreted, it is not informative, if one issue is treated at a time (e. g. Hinich and Munger 1997, pp. 52–53), which makes it a challenge to sensibly interpret it in the current context. What can be determined in the present context, is whether road or rail infrastructure was treated at more length in the respective party and coalition documents and whether this relation is the same across both documents in one *Land*. If the latter is not the case, that might already point to intra-coalitional differences, inducing a more lengthy treatment of the matter in the coalition agreement (Klüver and Bäck 2019). Comparisons between the cases furthermore allow an assessment of how salient a topic is in one *Land* compared to the others.

Explicit mentioning of the BVWP in the coalition agreement should be read as a marker of salience for the respective coalition. The respective paragraphs force a certain degree of political attention to the topic. This does not concern affirmations of the then current BVWP 2003 – as in ‘The coalition advocates the accelerated implementation of the projects in the Federal Transport Infrastructure Plan’ (CDU/SPD Thüringen 2009, p. 52) – but references to the new BVWP 2030 as they are made by the coalitions in Bremen, Bayern, Hessen, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, and Schleswig-Holstein. These might relate to general procedural remarks like in Hessen: ‘With the new edition of the Federal Transport Infrastructure Plan, we will urge a future-oriented infrastructure policy on road, rail, and water in close coordination with the counties, cities and municipalities.’ (CDU/FDP Hessen 2009, p. 21). Additionally, they might address individual projects as in the case of Nordrhein-Westfalen: ‘[...] the third track between Aachen and Düren has to become part of the Federal Transport Infrastructure Plan’ (SPD/Grüne Nordrhein-Westfalen 2012, p. 67).

Table 5.2: Saliency: Subcategories and anchoring examples

Saliency of the topic		
Subcode	Positive	Negative
explicit mentioning of BVWP in coalition agreement	'With the update of the Federal Transport Infrastructure Plan, we are advocating a further shift in freight transport to rail.' (SPD/Grüne Nordrhein-Westfalen 2012, p. 69)	—
technical urgency	'The motorway intersections in the whole Rhein-Main region are virtually the bottlenecks. If those are not expanded, there is no use in expanding the rest.' (interview HE-02)	—
personal priority	'It was a certain effort to find a categorisation, that was also the wish of the minister, but we managed to do it.' (interview 3)	'In [another <i>Land</i>], this was done by letter from the minister, whereas in Sachsen, a letter from the head of the division was sufficient for the proposals as well as for the written comment [on the draft BVWP] later. That is a matter of taste.' (interview SN-01)
perceived relevance of <i>Land</i> 's participation	'It is a first important step. If a project is not included in the framework, you have to wait 15 years until it gets in.' (interview 4)	'It is important for the legitimisation for the federal level [...] But it does not have more relevance. We cannot formally "force" the federal level to anything.' (interview 21)

Technical urgency based on an untenable state of the current transport network is invoked rather seldom, even though the contrary – a general saturation – is not affirmed either. General urgency has been formulated in the case of Hessen with regard to bottlenecks in and around Frankfurt: 'The motorway intersections in the whole Rhein-Main region are virtually the bottlenecks. If those are not expanded, there is no use in expanding the rest.' (interview HE-02¹⁵) Project-specific urgency has been voiced in other *Länder* as well but not connected to infrastructure expansion (or non-expansion) as a whole. Those *Länder*, besides Hessen, closest to formulating technical urgency were Hamburg, Niedersachsen, and Nordrhein-Westfalen with reference to the necessity to better connect the harbours to the inland transportation network. Officials from Niedersachsen warn that '[...] it must be feared that [...] the importance of the [rail] projects for the development of

¹⁵ As set out when introducing the methodological set-up in chapter 3, each interview can be interchangeably referenced with its respective *Land* code and a number or with a running number only. The second option is used for heightened anonymity when discussing relations between the levels or otherwise sensitive areas.

the German sea ports is not adequately considered in the preparation of the new Federal Transport Infrastructure Plan.’ (Niedersächsisches Ministerium für Wirtschaft, Arbeit und Verkehr 2013, p. 10). In no *Land*, there would have been reference made to veritable crises that would have pushed the *Länder* to propose (or refrain from proposing) infrastructure. In this, the long-term nature of infrastructure projects might play out, which entails ‘far-reaching path dependencies’ that pre-empt spontaneous reactions (Fraunholz and Hascher 2018, p. 161). This makes even the most audacious motorway or high-speed rail project unfit to respond to any immediate crisis.

The decision-making process for which projects to propose for the BVWP has met varied levels of engagement from the respective political leadership, which I interpret as different levels of personal priority given to the task by the respective minister. In some *Länder*, the minister took a personal interest in the set-up of the process as e.g. in Brandenburg: ‘It was the express wish of the minister to make [the process] public.’, (interview BB-02) In others, e.g. in Baden-Württemberg, they engaged in presenting it to citizens: ‘We had two events with the minister and two with the state secretary [...], thus, highly politically placed’ (interview BW-02). In other cases no such active role can be discerned, even though it goes without saying (and has been said as well), that in all cases the respective minister has had or at least could have had the last word in how the process would be conducted and which output was produced. Thus, even in the absence of active involvement, there is reference made to the kind of reserve of authority typically associated with hierarchical government (Döhler 2006, p. 218).

In the context of BVWP preparation, the perceived relevance of the *Land*’s input for the federal decision could be assumed to be a critical point when thinking about salience. Certainly, all interviewees in the ministries were well aware that the final decision would be taken on the federal level and several emphasised, that all they could do was proposing projects – especially for the rail sector: ‘It is really only proposals. The federal level is the owner and financier. Therefore, we can only go there [...] with good arguments [...]’ (interview 34) For the road sector, emphasis was put on delivering convincing data for the projects without any certainty about what would happen in the end as this quote illustrates: ‘We were surprised about some results. We would not have thought that, but we have to accept it.’ (interview 4). Another interviewee would sum it up thus: ‘The federal level does its thing.’ (interview 3) Still, some sense of relevance was rather universal. Despite doubts about the impact of the *Länder*’s work on the federal decision, quite a few officials stressed that the considerations behind the proposals were also relevant for the *Land* itself, e.g.: ‘The benefit is also for the citizen and the economy in Bayern, we should not lose sight of that.’ (BY-01) Others saw the work put into their proposals as enhancing efficiency in a longer-term perspective: ‘That is duplicative work, if I first make a giant demand list and then again a demand list for what is really important.’ (BB-01) Thus,

the task was handled with sincerity everywhere, even though the relations to the federal level were interpreted differently to some degree.

The percentage of words dedicated to transport overall, and to road and rail infrastructure more specifically in election manifestos and coalition agreements adds a general, albeit very tentative overview of the importance of the topics in all *Länder*. The percentages are given in table 5.3 on the next page. Overall, transport policy and infrastructure-related topics seem to be more prevalent in coalition agreements than in election manifestos. The medians of all three percentages – transport-related passages, road-related passages, rail-related passages – are higher for the coalition agreements. The same holds for the minima and most of the maxima – only for road-related passages is the highest percentage to be found in the election programme of the SPD Hamburg, which is an exception insofar as naturally no coalition agreement exists for the resulting one-party government. This speaks to a certain contentiousness of infrastructure projects in general that necessitate a more lengthy treatment in the coalition agreements than the parties found necessary in their unilateral manifestos.

In terms of the respective minister's party's election programme, most space (relatively seen) was accorded to the topic of transport by the SPD and the Greens in the city states Hamburg and Bremen. Both are also those cases that dedicate the highest percentage of their documents to road infrastructure compared to the other *Länder*, closely followed by the FDP in Sachsen. Rail infrastructure is most prominent in the election programmes by the SPD in Nordrhein-Westfalen and the FDP in Bayern. On the other side of the spectrum, the election programme of the SPD in Niedersachsen gives only relatively little space to transport policy in general as well as on the two infrastructure modes. For road infrastructure, it is matched by the CDU in Thüringen and the Greens in Baden-Württemberg, and for rail infrastructure, undercut by the SPD in Schleswig-Holstein.

According to the coalition agreements, transport policy was most salient for the coalition of SPD/CDU in Berlin, followed with some distance by the SPD/Greens/SSW coalition in Schleswig-Holstein and the SPD/Greens coalition in Niedersachsen. Interestingly, Bremen, Bayern, Hessen, Nordrhein-Westfalen, and Rheinland-Pfalz who have been pointed out earlier for explicitly mentioning the BVWP 2030 in their coalition agreements do not all have above-median percentages – Bremen and Nordrhein-Westfalen being slightly below. Still, none of them is far below the median, thus lending support to the argument, that the quantitative and qualitative measures sensibly speak to each other. Road infrastructure is given most space by the SPD/Greens coalition in Rheinland-Pfalz, followed by Berlin and Niedersachsen. Rail infrastructure had most salience for the CSU/FDP coalition in Bayern. The lowest percentage of words was dedicated to road infrastructure in the coalition agreements between CDU and FDP

Table 5.3: Saliency of transport policy/infrastructure in election programmes and coalition agreements (most extreme values indicated in *italics*)

Land	Year	Minister	Coalition	% of election programme			% of coalition agreement			% point difference		
				transport	road	rail	transport	road	rail	transport	road	rail
BW	2011	Greens	Greens/SPD	2.69	0.07	0.60 ¹	6.18	0.90	0.61	3.49	0.83	0.01
BY ²	2008	CSU	CSU/FDP	1.19	0.19	—	4.85	0.88	1.37	3.66	0.69	—
BY ²	2008	FDP	CSU/FDP	4.11	—	1.17	4.85	0.88	1.37	0.74	—	0.19
BE	2011	SPD	SPD/CDU	2.54	0.25	0.47	7.97	1.17	0.76	5.43	0.92	0.28
BB	2009	SPD	SPD/Left	1.70	0.32	0.42	3.73	0.96	0.55	2.03	0.64	0.14
BR	2011	Greens	SPD/Greens	6.42	1.08	0.25	4.79	0.75	0.57	-1.63	-0.33	0.32
HA	2011	SPD ³	SPD	6.57	2.03	0.98	—	—	—	—	—	—
HE	2009	FDP	CDU/FDP	2.94	0.72	0.25	5.63	0.82	0.91	2.69	0.09	0.66
MV	2011	SPD	SPD/CDU	2.02	0.33	0.65	3.76	0.27	0.63	1.74	-0.06	-0.02
NI	2013	SPD	SPD/Greens	0.66	0.07	0.09	6.43	1.09	0.48	5.77	1.02	0.39
NW	2012	SPD	SPD/Greens	3.86	0.26	1.25	4.77	0.34	0.61	0.92	0.08	-0.64
RP	2011	SPD	SPD/Greens	3.12	0.55	0.37	5.18	1.33	0.38	2.06	0.78	0.01
SL	2012	SPD	CDU/SPD	2.66	0.31	0.31	1.12	0.14	0.43	-1.54	-0.17	0.12
SN	2009	FDP	CDU/FDP	3.82	1.02	0.42	1.66	0.37	0.67	-2.16	-0.65	0.25
ST	2011	CDU	CDU/SPD	1.18	0.26	0.26	5.16	0.27	0.87	3.99	0.02	0.61
SH	2012	SPD	SPD/Greens/SSW	2.78	0.55	0.04	6.55	0.93	0.47	3.77	0.38	0.43
TH	2009	CDU	CDU/FDP	3.37	0.07	0.28	4.71	0.12	0.60	1.34	0.05	0.32
			<i>Minimum</i>	0.66	0.07	0.04	1.12	0.12	0.38	-2.16	-0.65	-0.64
			<i>Median</i>	2.78	0.32	0.39	4.85	0.85	0.61	2.04	0.09	0.25
			<i>Maximum</i>	6.57	2.03	1.25	7.97	1.33	1.37	5.77	1.02	0.66

¹ This number excludes the lengthy treatment of the party's opposition to the train station project *Stuttgart 21*. Including this discussion would push the number up to 1.5 %.

² In Bayern, infrastructure policy was taken care of by two ministries. Responsibility for road infrastructure lay with the Ministry of the Interior, responsibility for rail infrastructure lay with the Ministry for Economic Affairs.

³ The senator responsible for transport in the government resulting from the 2011 election was no party member. Given the fact, that the government was an SPD one-party government, it nevertheless seems safe to use the SPD programme as a proxy.

in Thüringen and between CDU and SPD in the Saarland. Rail infrastructure was least salient to the SPD/Greens coalition in Rheinland-Pfalz and the CDU/SPD coalition in the Saarland according to this measure.

There are cases with marked differences between the minister's party's election manifesto and the coalition agreement when it comes to the importance of transport policy and infrastructure. The most notable case is Niedersachsen that stands out for low percentages in the election manifesto but much higher ones for transport and road infrastructure in the coalition agreement. This points to it that the topic was controversial between the coalition partners (Klüver and Bäck 2019, p. 2016). In this specific case, the disagreement that had to be overcome is even explicitly spelled out: 'Besides different assessments concerning the usefulness of additional motorways, SPD and Greens have come to an understanding [...]' (SPD/Grüne Niedersachsen 2013, p. 63).

All aspects combined, a differentiated assessment of salience is warranted that takes into account election manifestos, coalition treaties, and personal and technical de-facto priorities. From a procedural point of view, the latter have indeed the highest potential to shape the decision-making process, while salience in manifestos and coalition agreements can serve as a rough baseline. In line with existing knowledge on the relation between ministerial room for manoeuvre vis-a-vis coalitional restraints (Moury 2011, pp. 400–401), coalition treaties serve as a boundary framework in cases where the BVWP is explicitly mentioned – which is not generally the case – and will mostly impact individual cases unless co-decision of the coalition partners has explicitly been agreed upon.

5.3 *Bund-Länder* relations

Preparation of BVWP proposals in the *Länder* is embedded in a multi-level framework with the relations between the federal and the *Länder* level being the most relevant part of the framework for this task. Additionally, there is also an international level involved for the cross-border projects and transport flows (e. g. the railway connection between Amsterdam (NL) and Oberhausen proposed by Nordrhein-Westfalen, or the extension of a part of the motorway A8 between Munich and Innsbruck (A) proposed by Bayern) as well as a local level where transport problems are often witnessed most drastically (visible in the many bypass roads proposed by the *Länder*). Still, these two levels rather enter the process with information and signalling of interests than as co-decision-makers, they will therefore be addressed in the last subsection that deals with external actors.

The relation between the *Länder* and the federal level is one of hierarchy and anticipation in the context of the BVWP. The BVWP is a federal strategy and subject to federal assessment and finally federal translation into law. The *Länder* thus find themselves in the

position of agents who can only send signals to a principal (Bendor et al. 2001, pp. 241, 249–251). They act under a ‘shadow of hierarchy’ (Scharpf 1997, pp. 197–200).

For the purpose of my analysis, information about the relation between the federal and the *Land* level has first and foremost been obtained from the expert interviews with employees of the *Land* ministries of transport. In some cases, parliamentary documents picked up aspects of this topic as well. However, especially disagreements between the levels or certain disenchantments with federal procedures are rarely documented officially on the *Land* level. Rather, such topics are addressed via the VMK, which then allows no disaggregation for individual *Länder* positions. This aggregated position can still be consulted in order to frame the overall discussion.

The host of multi-level interaction in the BVWP process takes place *after* the *Länder* have handed in their proposals to the federal level and is thus of little relevance for the analysis here. This is the part of the process that C. Fischer (2018) has analysed for the cases of Nordrhein-Westfalen and Brandenburg for the BVWP 1994 and 2003. In this stage, where the approval or rejection of projects is at stake, various actors are addressed. That may be ministerial officials as well as the respective minister and state secretaries. One interviewee described it thus: ‘When we have specific demands, we see that the division head writes to the state secretary or when you perceive that you have to press forward, the minister writes to the minister. Those are different levels, depending on focus and importance of the project.’ (interview 3) Engineering offices commissioned with assessing the project proposals were at times contacted as well: ‘We called the federal consultants to [our project site].’ (SH-03) Some interviewees also stressed the early contacts to members of the federal parliament from the respective *Land* in whose hands it will ultimately be to sign into law the amendments for the infrastructure extension laws based on the BVWP. So, from the view of ministerial officials ‘the members of the federal parliament have specific value, because some of them are also speakers in the transport committee [...] we met with them and explained how we did this and why [...]’ (interview 4) None of this, although often referred to by the interviewees, is directly relevant for the question under study as it occurs only after the proposal stage.

The relations between the two levels still impact the proposal stage as well. This involves the information the *Länder* receive from the federal level, the rigour with which the *Länder* follow this information, strategic considerations, and direct federal intervention. The respective sub-categories and examples are summarised in table 5.4 on the facing page.

Even though the BVWP is a federal strategy and ultimately assessed along federally oriented criteria, in general, the *Länder* incorporate their own interests in this process and raise their proposals not only with an eye to success on the the federal level but also as a means to signal problems and demands. Hamburg is, however, ostentatious about

Table 5.4: *Bund-Länder* relations: Subcategories and anchoring examples

<i>Bund-Länder</i> relations		
Sub-code	Positive	Negative
aiming at success on federal level	'If you want to succeed, you need to prepare carefully.' (SN-01)	'We cannot position ourselves and say: Yes, we know, that [the inclusion of these projects in the BVWP] is not going to happen [and therefore we do not propose them]. We need them, we hold the view that they are necessary for our infrastructural development.' (SH-03)
attempt to anticipate federal decision	'We went through these projects [...] and estimated roughly, whether we have a chance to place them in the Federal Transport Infrastructure Plan.' (NW-01)	'We propose projects for [federal] assessment with an investment volume of more than 20 billion euro. This shows, that this is more a wish list than investment planning.' (Landtag Nordrhein-Westfalen 2013b)
blame shifting	'Ultimately, we pass the buck to the federal level, that might reject certain projects.' (interview 16)	'That used to be very easy for the <i>Länder</i> because they could say: Yes, we proposed it [...], but the federal level dropped it. [...] We decided to also draw this line and say, that we really only wanted to propose [the projects] that had a chance to get into [the highest priority category of the BVWP].' (interview 4)
perceived transparency	'Yes, the federal level visibly tried to act transparently.' (interview 11)	'No, the federal level was, in general, rather reluctant with what information they provided us. For a long time, we did not know what the federal level was up to.' (interview 33)
direct federal intervention	'In the meantime, the federal level has issued a directive for the <i>Land</i> Rheinland-Pfalz [to propose] an expansion to six lanes plus hard shoulders.' (Landtag Rheinland-Pfalz 2014)	'Every <i>Land</i> decided relatively autonomously, that was also what the federal ministry of transport had said: <i>Länder</i> , you decide, what you propose.' (interview 36)

having ‘solely proposed projects of national and international relevance for the BVWP and [supported] its neighbours with their proposals. The *Länder* cannot expect the federal level to solve their local transport problems.’ (Behörde für Wirtschaft, Verkehr und Innovation 2014) In light of the material at hand, this latter insinuation seems very much exaggerated. In general, a focus on benefits for the respective *Land* and the willingness to create added value for the population predominate. In some cases, this meant carefully selecting projects to meet federal demands, in others it meant proposing projects to uncover perceived flaws in the federal assessment framework, thus engaging in what Sack and Sarter (2018) have termed ‘Gegen-Politik’ (roughly translatable as adverse politics Sack and Sarter 2018, p. 738).

Concerning *Land* ministries’ anticipation of federal expectations when preparing project proposals, the different competences that the *Länder* have for road and rail shine through, still, in both cases the entire spectrum is present. In the most exemplary case, the transport ministry of Mecklenburg-Vorpommern together with their subordinate road authority tried to anticipate the assessment framework applied on the federal level and carried through their own pre-assessment of road projects, thus only proposing projects that were extremely likely to find their way into the BVWP 2030. A few other *Länder* Brandenburg, Baden-Württemberg, and Schleswig-Holstein went into a similar direction, applying some sort of pre-assessment in selecting their road projects, however not as rigorously oriented towards the federal criteria.

On the other end of the spectrum, *Länder* stressed the federal nature of the BVWP as well as the strategic aspect of the proposals and therefore refrained from any pre-sorting. This means that some *Länder* made less effort to anticipate federal expectations as they pointed out the division of competences – and therefore also of labour – between the federal and the sub-national level: As the BVWP is a federal transport infrastructure strategy that is decided on the federal level, the task for assessing projects was entirely seen on the federal side. Consequently, to give an example from Sachsen, the *Land* ‘does not plan any own assessment of the projects. This is the task of the federal level as the responsible building authority.’ (Sächsisches Staatsministerium für Wirtschaft, Arbeit und Verkehr 2012) This is particularly true for the rail sector, as the *Länder* have no organisational sub-structures for planning long-distance rail. Additionally, from a strategic – but also image – point of view, *Länder* felt compelled to propose all projects, that could in principle be eligible for the BVWP, in order not to forego the chance to have them included, or as one interviewee put it: ‘Out of which obligation should the *Land* reduce its [list of] infrastructure projects, that it finds necessary from a professional perspective?’ (interview 27) In that respect, the risk of not having proposed a potentially successful project was greater than the risk of proposing a project that would in the end fail federal approval: ‘That would not have been unproblematic, if a project [that we had initially

not proposed] would have been assessed very positively, that would not have been a good approach.’ (interview 39)

In the case of rail projects, differences among the *Länder* arose along the lines of a willingness to use the BVWP proposals to protest against the very restrictive BVWP criteria. While some accepted, at least for the moment, that the federal level would only take responsibility for infrastructure for long-distance (mostly meaning high-speed) rail transport, others ostensibly proposed projects for regional rail connections, that would fail federal approval under the current framework and illustrated a different understanding of federal obligations. The latter perspective mirrors the *Länder* position voiced by the VMK in 2013: ‘The Conference of *Länder* Ministers of Transport makes the federal level aware of its overall responsibility for the federal rail infrastructure. That includes infrastructure for regional rail.’ (own translation of VMK 2013, agenda item 4.5.6) Disenchantment with the federal interpretation of obligations for the different rail categories indeed appears to be relatively widespread and ranges from a fundamentally different interpretation of the legal basis to frustration with the actual implementation of the differentiation between long-distance and regional rail, as the following two quotes illustrate: ‘[...] for rail infrastructure, even though it is infrastructure of the federal level, they say, they only take care of long-distance and goods transport. We deem that unlawful, but [the federal level] simply does it that way.’ (interview 2, similar: interview 32) and ‘This is what the *Länder* oppose. It is long-distance rail as regards the distance, but it is supposed to be regional rail as regards the funding.’ (interview 20) For *Länder* holding such views, it is only logical to also propose regional projects for the BVWP, thus driving up the number of rail projects proposed.

The transparency of the overall BVWP process is viewed ambiguously by the *Länder*. While some emphasise the wealth of information that was provided by the federal level, others formulate a rather critical view on communication in the BVWP process. These views do not even contradict each other on a factual level, rather do they address two understandings of transparency: the mere accessibility of information and the realistic possibility that the information is ‘digestible’ (Etzioni 2010, p. 397; the same point is made with a distinction between ‘visibility’ and ‘inferability’ by Michener and Bersch 2013, pp. 237–239).

The information provided by the federal ministry of transport was accessible but not always digestible. The BMVBS put forward a detailed development scheme for the methodology behind the BVWP in a process that involved input and feedback from the *Länder* and other interested parties (BMVI 2018a). The results were accessible to all *Länder*. Still, some interviewees pointed out, that this did not sufficiently enhance transparency, as the assessment framework was too complicated and fine-grained to be grasped without ‘two or three semesters of studying’ (interview 18), so that it is understood by ‘what feels like

five, six persons in Germany' (interview 36). In effect, the assessment process was perceived as a 'black box' by several interviewees (interviews 4, 10, 22, 23). While some interviewees applauded the 'highly scientific' (interview 30) orientation of the assessment process, others questioned the ability to realistically forecast and attribute costs on such a fine-grained level – one interviewee illustrated the problem thus: '1,000 vehicles more or less, 5,000 more or less on a motorway, you cannot discern that, we cannot forecast that. We act as if we could, but we cannot.' (interview 23).

The timing of the processes on the federal and the sub-national level added another component to the transparency question. While the methodological framework was still being prepared on the federal level, the *Länder* were already asked to contribute their proposals. Depending on timing within the *Länder* this was felt to a higher or lesser degree as a disturbance. Some *Länder* that went ahead quite early with the preparation of their proposals did so under uncertainty as regards the decision-making processes about the methodological set-up on the federal level, that still ran in parallel (interviews 9, 27, 31, 33, 39). The overall assessment framework was, however, long known from previous BVWPs and it was possible to 'see by and large where the cost-benefit ratio would be and how problematic that would be from a building-law perspective, to what extent the environment is affected, to what extent people are affected [...]' (interview 4).

The two-level process with proposals on the sub-national and decision on the federal level opens room for blame shifting between the levels (Milio 2014, pp. 386, 388, 395; Heinkelmann-Wild and Zangl 2020). In general, interviewees have pointed out, that blame shifting has been much more prevalent in previous BVWP processes, where *Länder* proposed high numbers of projects in order to appease local and regional interest groups – when these projects then did not reach a favourable classification in the BVWP, the federal level was blamed (interviews 4, 16). The emphasis on realistic proposals for the BVWP 2030 was partly interpreted as a remedy to such behaviour, and ministerial officials also adopted this new orientation and pointed out that the previous development had been untenable: 'The former plan included hundreds of projects, where you knew from the start, that they can never be processed – not financially as the federal level would not provide the funds, the *Land* could never have provided the funds for planning, and the staff would not have been available either.' (interview 31)

Federal intervention in the proposal stage was limited to projects for motorways. Here, coordination between the levels about which projects to propose was usually very close. In cases of fundamental disagreements, the federal perspective prevailed. In the most exceptional case of Rheinland-Pfalz cited in the table above, the federal level issued a directive based on Article 85 of the Basic Law formally ordering the *Land* to hand in the pre-planning documentation for a project variant, that the *Land* initially did not intend to propose. In most cases, however, such disagreements were solved without a formal

directive – the possibility of receiving a directive was anticipated (interview 18). One interviewee summarised the role that the *Länder* officials for road planning found themselves in in the following way: ‘We manage the federal highways on behalf of the federal level, and when the federal level asks us to prepare a project for assessment, we do it. [...] That partly were projects, which our [*Land*] politics opposed, where [the ministerial officials] said: We manage on behalf of the federal level, we have to do that now.’ (interview 39)

Generally speaking, most *Länder* tried to use the room for manoeuvre provided to them by the BVWP framework. The proposal stage was, of course, only a first step which would in later stages be accompanied by various lobbying activities. In few cases disagreements between the levels about motorway projects emerged already in the proposal stage, and these were settled in accordance with federal ideas. Different approaches among the *Länder*, when it comes to proposing road projects, rather occur along the lines of pre-selection of projects, thus to what extent the federal request to hand in realistic proposals was adhered to and was interpreted as also meaning a manageable number of projects besides stating realistic costs. Reasons for concern for quite a few *Länder* lie in later stages of the process, where the assessment process on the federal level was perceived as non-transparent and lacking communication with the *Länder*.

Disagreements were more pronounced in terms of rail projects, as the disagreement here involved the BVWP framework as such: Several *Länder* challenged the federal interpretation of its obligations under the Basic Law, namely that infrastructure for regional rail was entirely in the responsibility of the *Länder*. This fundamental difference had sizeable impact on *Länder* proposals, as it meant that some *Länder* would adhere strictly to the federal interpretation and propose only infrastructure for long-distance rail and for transport of goods, while others would include projects for regional rail as well. This latter behaviour is similar to the ‘Gegen-Politik’ that Sack and Sarter (2018) have identified in the behaviour of the *Länder* towards a specific decision on the European level.

5.4 Political influence

Studying political influence in ministerial decision-making implies subscribing, for the moment, to a dichotomous understanding of political versus bureaucratic work (van Dorp and 't Hart 2019, pp. 878–879). While the bureaucratic aspect is characterised by a rather technical and legal orientation, the political aspect captures interest representation, ideational differences, considerations of power and legitimacy. While functional politicisation implies that bureaucratic actors themselves bring political considerations into their work (Mayntz and Derlien 1989, p. 401; Hustedt and Salomonsen 2014; Veit et al. 2018), the dialogue-model between bureaucratic and political actors picks up the

analytical distinction between politics and bureaucracy and points out that there is a divide that actors, however, routinely bridge in decision-making (Scharpf 1997, p. 198).

In order to assess the degree of political influence on the decision-making process, parliamentary questions shed light on some aspects, while for most questions the expert interviews were vital. Other documents like coalition agreements, schedules, and parliamentary protocols provided important supporting evidence and at times allowed to double-check information. Still, these documents could often only be interpreted in light of the interviews: While it is e. g. self-evident that the formal resolution by Schleswig-Holstein's parliament was an authoritative act with binding effect for the respective *Land* government – which in that case also became obvious from ministerial letters published in the respective parliamentary database – it is not in itself apparent, that decisions by parliamentary committee would also have been treated as binding. In some *Länder*, this clearly was the case, as gets clear e. g. from this quote from Nordrhein-Westfalen: 'If the [parliament's] committee had forbidden us to propose the list like it was, we would not have handed in our proposals like that.' (NW-02) Furthermore, some aspects are only rarely addressed in published documents, e. g. whether or not inter-ministerial coordination took place. Aspects of indirect political steering via a dialogue model between politics and bureaucracy and via functional politicisation are beyond public documentation anyway. Table 5.5 on the next page shows the respective anchoring examples for markers of politicisation of the decision-making process.

Most interviewees would remark at some point that decision-making in ministries was an inherently political affair and all they could do was prepare proposals for the minister to decide. One interviewee put it thus: 'We say what we think about it, and when politics decides differently, that's how it is. [...] The specialist officials are not always pleased with this, but you have to live with it if you work in a ministry.' (interview 3) Still, the degree to which the decision-making process on project proposals for the BVWP was directly influenced by political considerations but also the channels for such influence varied among the *Länder*. The channels include coalition agreements and committees, inter-ministerial coordination, parliamentary approval by committee or plenary, personal involvement of the minister, and consideration of normative criteria in the decision-making process. I will discuss these in turn after delineating the general framework of functional politicisation and dialogue.

The realisation of a dialogue model between bureaucracy and politics is the everyday mode how political programmes guide bureaucratic work besides the pure delegation act. Politicians and bureaucrats talk to each other and figure out jointly, how to approach certain tasks (Scharpf 1997, pp. 178, 198) or ideas move back and forth between the levels in an implicit discussion (Mayntz and Scharpf 1975, p. 100). It is usually up to the bureaucracy to come up with proposals, which are then accepted, rejected, or changed

Table 5.5: Political influence in the decision-making process: Subcategories and anchoring examples

Politicisation of the decision-making process		
Sub-code	Positive	Negative
Functional politicisation	'I will, of course, plan my professional objective part with what I foresee where political interests are, and my drafts will be accordingly.' (interview 16)	—
Dialogue model	'That was the first step, that we exchanged our thoughts from the working level, the section level, with the ministerial top level and went through all the projects and then came to the conclusion: No, within the new proposals rail should have priority.' (SH-02)	—
Minister	'After intervention from the top of the ministry, it was agreed that this was the best solution.' (interview 23)	'I am not aware of any [political expectations].' (interview 31)
<i>Land</i> parliament	'The next step was that the <i>Landtag</i> should approve as well.' (SH-02)	'The <i>Land</i> government will inform the <i>Landtag</i> about the final list of proposed projects.' (Landtag von Baden-Württemberg 2013c)
Inter-ministerial coordination	'That we would have [coordinated] with other ministries, I would say: No.' (BB-04)	'Then, the next challenge was to coordinate this within the <i>Land</i> government with the other ministries.' (SH-02)
Government	'No proposal [for this project]. See coalition agreement of the government parties.' (Straßenbauverwaltung des Landes Niedersachsen 2013)	'It has never been formally considered an affair to be treated in the Cabinet.' (SN-01)
Political criteria	'In Bayern, regional proportionality is very important.' (BY-03)	'It was really important to us [...] to have a uniform method, where [no-one could complain] that someone would be preferred, that anything had a political touch.' (BB-01)

on the political level – not always is the solution preferred by the ministerial officials the one that gains acceptance at the top as e. g. in this case regarding the question of how to engage the public in the process: ‘We had had a variant in view with a little more public participation, but that was not favoured [by the minister].’ (interview 4)

Functional politicisation, thus the bureaucratic anticipation of which solutions will be politically desirable or politically feasible, is present but at the same time balanced by a dualist understanding between bureaucracy as rather technocratic and politics as stronger driven by negotiations and appreciation of different values. In line with the literature, ministerial officials are often very much aware of the political leanings of their superiors (Mayntz and Derlien 1989; Hustedt and Salomonsen 2014; Veit et al. 2018). A paramount example is the interviewee stating: ‘I will, of course, plan my professional objective part with what I foresee where political interests are, and my drafts will be accordingly.’ (interview 16) In the same time, ministerial officials stress technical adequacy as their core area of competence and draw a marked distinction to politics in this regard: ‘Actually, it is our task to offer some subject-matter knowledge in reply to [political initiatives].’ (interview 18) They thus echo what the literature has been presenting as characteristic for German bureaucracy and what is also juridically confirmed, namely that ‘As a guarantor of the public good, officials are expected to act, to some degree, as a counterweight to the changeable and volatile political executive.’ (Goetz 2007, pp. 169–170) This dualism between subject-matter knowledge and ‘politics’ has even been emphasised by state secretaries, thus the highest formally politicised officials (Veit et al. 2018, p. 431). It is therefore even less surprising to find this distinction represented on the lower levels of the hierarchy. In a number of interviews, there emerges a clear cut, where bureaucratic responsibility ends, and that is in questions of party, cabinet, or parliament – officials supply their ministers with technical arguments for those arenas (interview 30) but else perceive those arenas as ‘a black box’ (interview 23).

Direct co-production with or intervention by the minister would seem to be the most obvious pathway for political influence in ministerial decision-making. In *Länder* that have based their proposals on a conceptual framework, this framework itself has in some cases been the result of co-production between political and bureaucratic actors. In Mecklenburg-Vorpommern, ‘[it was] important to the minister, that projects will not be proposed, when there is a clear [local] opinion against it.’ (MV-02), thus the criterion of local acceptance was integrated prominently in the decision-making process in the *Land*. In other cases, a political assessment took place after an initial proposal by the bureaucracy. In the words of an interviewee from Rheinland-Pfalz: ‘That means, we made a proposal list first, that we – after this was all assessed and done – presented to the political level, coordinated within the house and with other ministries.’ (RP-01) Usually, both ways were very much intertwined. A quote from Baden-Württemberg serves as

an example here: ‘It works that way, that you write notes, explain this concept, then that goes up to the top and comes back, and then they say, it’s okay or it’s not okay.’ (BW-02)

The potential for parliamentary actors to intervene in the decision-making process greatly depended on the goodwill of the respective ministry. The reason for this is simply, that ‘[t]here are no formal rules of procedure for the proposal of projects for the BVWP, that would require an involvement of the *Land* cabinet or parliament.’ (Landtag Brandenburg 2012). Thus, it is up to the *Land* ministries – or the governments in case the topic gets that much attention – to decide to what extent the parliament is involved in deciding about a *Land*’s BVWP proposals. The generally asymmetric relationship between parliament and bureaucracy when it comes to expertise is thus exacerbated (Kropp and Ruschke 2010, p. 668). The BVWP preparation process is mainly dealt with by the respective ministry. The different degrees to that the parliament was involved get clear from equally-worded parliamentary questions, that members of *Land* parliaments from the Green party raised in most *Länder*, where their party was in opposition during the proposal stage for the BVWP: Berlin, Brandenburg, Hamburg, Hessen, Saarland, Sachsen, Sachsen-Anhalt, and Thüringen. In Baden-Württemberg, where the Greens have been in government, a member of the CDU put forward a similar enquiry. Solely for Bayern and Mecklenburg-Vorpommern no enquiry of this kind could be retrieved despite the Green party being part of the opposition. Some ministries answer the question for parliamentary participation quite brusquely as in the example from Baden-Württemberg: ‘The *Land* government will inform the *Landtag* about the final list of proposed projects.’ (Landtag von Baden-Württemberg 2013c), thus making very clear, that no parliamentary participation was aimed at and parliament would only be informed after a decision had been reached. Other ministries signal at least potential openness to report ‘if the responsible committee demands it’ (Landtag des Saarlandes 2012). A third group emphasises that involving the parliament ‘is important to the *Land* government and will continue via the [respective] committee’ (Landtag Brandenburg 2012). Schleswig-Holstein was the only *Land* to formally engage the parliamentary plenary, as the requirement of *Landtag* approval had been agreed by the coalition partners after forming the government in 2012 (SPD/Grüne/SSW Schleswig-Holstein 2012, p. 29).

There are only few cases where the parliament was involved prominently apart from the plenary decision in Schleswig-Holstein. In some cases, members of parliament were referred to the possibility to participate in regional conferences. Besides being a means of transparency, committee approval of the proposal lists was also treated as authoritative in Brandenburg and Nordrhein-Westfalen (BB-03, NW-02). The respective committees had debated the topic of BVWP proposals extensively beforehand and questioned the respective minister or state secretary about general guidelines as well as individual projects (among others: Landtag Brandenburg 2013a,b; Landtag Nordrhein-Westfalen 2013a,b).

These discussions did not result in any changes to the proposals lists. In other cases, the respective ministry communicated that they did not plan to involve the parliament in the process (e.g. Abgeordnetenhaus Berlin 2012, p. 1).

Inter-ministerial coordination and formal cabinet decisions were far from universal in preparing the proposals for the BVWP. They also seem to have been of little consequence for the final lists of projects to be proposed. Where they did take place, they did not lead to changes in the lists proposed by the respective transport ministry. Still, it cannot be ruled out that anticipation might have had an effect on the effort put in justifying the projects proposed, where inter-ministerial coordination took place. Cabinet decisions were certainly a higher hurdle, where coalition partners took somewhat different stances on transport policy and/or had made the BVWP proposals a topic of their coalition agreements.

The effect of coalition agreements and committees is visible in fundamental impact for single projects as well as procedural guidelines. In Niedersachsen, the coalition agreement ruled out certain infrastructure projects. Accordingly, these have not been proposed or in an alternative form despite the initial considerations on a technical level (Straßenbauverwaltung des Landes Niedersachsen 2013, pp. 1–2). In Rheinland-Pfalz, the coalition partners included in their coalition agreement a clause about the necessity of their mutual agreement to the proposal list for the BVWP (SPD/Grüne Rheinland-Pfalz 2011, p. 62). Consequently, a committee involving both parties was set up and actively shaped the decision-making process (Landtag Rheinland-Pfalz 2013, p. 2877). Here, like in Niedersachsen, certain projects were seen critically. However, the overall picture stayed close to that prepared by the ministerial officials, as only few projects were directly addressed by the coalition agreements (consider again the list from Niedersachsen, eliminating two motorway projects and four sub-projects for one federal highway: Straßenbauverwaltung des Landes Niedersachsen 2013; Niedersachsen finally proposed 220 projects: BMVI 2014c). Still, coalition agreements influenced the set-up of the overall decision-making process, e.g. in prescribing that both coalition partners would have to agree to the proposal list (Rheinland-Pfalz, as just mentioned) or in that *Landtag* approval (SPD/Grüne/SSW Schleswig-Holstein 2012, p. 29), or a strong role for local authorities (SPD/CDU Mecklenburg-Vorpommern 2011, p. 21; CDU/FDP Hessen 2009, p. 21) were agreed upon. The binding effect of coalition agreements of which the bureaucracy is well aware has been summed up by one interviewee who referred to the document as ‘our bible’ (interview 14).

Normative considerations to propose projects that deviate clearly from the criteria put forward by the federal level were most prominently found in the discussion of international projects, but also in questions of regional reachability. The federal criteria – e.g. elimination of bottlenecks, reduction of travel times, transport security – offer

no guidance in assessing international transport problems and disregard reachability. I outline this in the next two paragraphs.

International projects do not result from measurable shortages or the identification of bottlenecks in inter-country transport. This is not because those problems did not exist, but because the kind of transport assessment that is prepared to identify such shortcomings on the national level is missing transnationally and infrastructure is planned from a national perspective (van Exel et al. 2002, p. 310; Sack 2016, p. 198; Monse 2017, p. 27). This means, that '[t]he federal level only [considers transports] up to the federal frontier. When most transports arise behind the federal frontier [...] then you need a treaty.' (interview 10) Methodologically, international transports are '[...] difficult to depict [...] in an analysis of weak points' (interview 31), '[...] because, in part, the data is also missing' (interview 6). International projects thus usually result from decisions of the respective national governments and are not necessarily relevant for the BVWP, as one interviewee from Schleswig-Holstein explained for the Fehmarnbelt connection between Denmark and Germany: 'Fehmarnbelt as a project is subject of a treaty between Denmark and Germany and therefore does not have any role in the Federal Transport Infrastructure Plan.' (SH-02) Certainly, international projects are often helped, championed, and prepared by sub-national contacts (e. g. the rail expansion projects to Prague by Bayern and Sachsen, respectively) – or international contacts are activated to reinforce the necessity of certain projects in communications with the BMVI (interview 7). One ministry official also pointed out the similarity of international projects to the German Unification Transport Projects (*Verkehrsprojekte Deutsche Einheit*, VDE), that were not exclusively rooted in transportation demands either but also served an integrative function between what had formerly been East and West Germany (interview 16).

Regional reachability is a criterion that has more to do with infrastructure as part of the provision of public services than with economic interests or the lessening of traffic congestions. It addresses 'areas where efficient road connections are missing, that are somewhat at the periphery [of the *Land*] and are difficult to reach' (BB-02). In this vein, the representation of all parts of the respective *Land*, regardless of economic strength and population density, is explicitly put forward as a criterion for project choice. More generally speaking, the population of no part of a *Land* should feel left behind or disregarded. This view is almost universal among the area states. Consequently, an appraisal of reachability and regional proportionality as such is not suited to explain differences between the *Länder*.

All considered, there is a general impression of rather smooth bureaucracy-politics interaction, testifying to the existence of effective dialogues between political superiors and the bureaucratic working-level (Scharpf 1997, pp. 178, 198; Mayntz and Scharpf 1975, p. 100). Political influence could impact decision-making on a conceptual as well as on

a project level. Individual projects have been added or deleted as a result of coalition agreements. Conceptually, the whole process of project definition could be designed in a joint effort of political and bureaucratic level of the ministry or be rather left to the bureaucracy to come up with. Inter-ministerial coordination as well as parliamentary approval was of little relevance for project selection even though it might serve an important legitimising function.

5.5 Internal rules

The category of internal rules in the context of BVWP proposals relates to the existence of a set of criteria or categories beforehand according to which projects are then selected. Whether or not such a framework exists is important in the context of choosing projects for the BVWP as it defines the relation between technical and other criteria for decision-making, and by agreeing on such a framework, actors to some degree tie their hands when it comes to selecting projects and answering other's demands for the in- or exclusion of projects.

Some *Länder*, that have relied on such a framework, have presented it officially on their websites – especially when they additionally opened the decision-making process for public participation. Parliamentary questions and committee protocols offer insights as well, at least if the parliament received relatively comprehensive answers from the respective ministry. In cases that are less well documented publicly, or where the public documentation has been discontinued after the BVWP process had been finished, the expert interviews offered accounts of the frameworks used. Often, these accounts could be underpinned with additional material from schedules or notes. Table 5.6 on the facing page brings together the resulting categories with positive and negative examples.

Länder ministries differed widely in the extent to which they based their decisions about projects to be proposed on pre-formulated criteria or pre-defined categories of projects that would be deemed eligible for proposal. Comparatively few *Länder* developed a decision-making concept exclusively for their BVWP road projects, and even fewer did the same for rail. The reasons cited for engaging in such a resource consuming exercise at all can be summarised in three groups, that allow to defend proposing fewer projects:

- adequacy: ‘We really tried systematically to find weak points in the network of federal highways. It is a strategy to improve the network where you find that it is deficient instead of taking [previously] proposed projects.’ (BB-02)
- argumentative defence on the *Land* level: ‘This concept was worth a mint, because we could [counter] demands from mayors, regional entities who said “Okay, we have a severe transport problem here, you have to do something!” by saying: We

have a concept and when something does not fit into this concept, we are not going to propose it.' (BW-02 , similar also BB-01 in table 5.5 on page 145)

- easing implementation on *Land* level: 'We wanted to make a rather realistic list, that can also be handled, in order not to get into a situation where we would have to define priorities among 200 projects again.' (BB-01)

Frequently, already existing planning documents have been used as a resource to base decisions on. In some cases, *Landesentwicklungspläne* (Development Plans: Saarland, Sachsen, Sachsen-Anhalt) or *Landesverkehrspläne* (Transport Plans: Berlin) had been prepared shortly prior to the decision about projects to propose for the new BVWP or were under preparation in about the same time. In those cases, the lists in the respective planning documents served as a basis for BVWP proposals. In the case of road projects, it was then relatively clear which projects to propose. For rail projects, former planning documents did not give any guidance to what extent a *Land* would also propose regional projects that were not formally eligible for the BVWP.

Table 5.6: Internal rules: Subcategories and anchoring examples

Existence of internal rules for project choice		
Sub-code	Positive	Negative
Prior strategic planning document	'We had a focus on which projects were included in the <i>Land</i> Development Plan.' (ST-01)	—
Clear criteria	'We had three criteria according to which we assessed whether the project should be proposed again.' (SH-01)	'The <i>Land</i> of Hessen was one of the few, I guess, that said: We propose everything. There was no pre-selection.' (HE-02)
Categories of projects	'The proposal list for rail projects distinguishes, similarly to the concept for the proposal of road projects, between: axes of the Trans-European Network (TEN) and other international connections, axes between main centres/relief of bottlenecks in the transport of people and goods, rail infrastructure of regional and local transport [...], combined transport' (Landtag von Baden-Württemberg 2013b)	'But we said we cannot "sell" that to externals, if we do not at least propose everything that was already in [the former BVWP 2003].' (BY-03)

The former BVWP 2003 or the requirement plans valid at that time have generally been used as a baseline in many *Länder*, however from two diametrically opposed perspectives: Some took it as a starting point to choose projects from among those proposed back then,

adding new projects was rarely considered under this perspective, which was e. g. prevalent in Schleswig-Holstein, where '[...] it was decided, that there should be no new road projects and we would only propose what had been in the previous Federal Transport Infrastructure Plan but could not be realised, yet.' (SH-02) Others saw the lists from the BVWP 2003 as the minimum to which new projects could be added if required. The reason behind this usually was a view that 'we cannot "sell" that to externals, if we do not at least propose everything that was already in [the former BVWP 2003].' (BY-03) In such a case, deletion of former projects was not seen as an option unless e. g. local actors signalled that they did not support the project (e. g. several negative votes of municipalities in Niedersachsen led to the withdrawal of individual projects: Straßenbauverwaltung des Landes Niedersachsen 2013, pp. 2–3) or, in the meantime, another measure 'has been realised locally, that solved the transport problem.' (ST-01)

All in all, internal rules could have an additive or a subtractive orientation vis-a-vis prior planning documents, that constituted the status quo in almost all *Länder*. This means, that prior documents, often the BVWP 2003 or the indirectly resulting last federal requirement plan, could serve as the minimum or the maximum line of projects to propose. Especially where there was a potential to back out of formerly proposed projects, explicit concepts were a means to legitimise and also publicly explain such moves. Where former planning documents served as a minimum line not to be undercut, clear criteria and categories served to identify manageable or necessary projects out of the mass of potentially desirable ones – even though not necessarily restrictive compared with the former BVWP, clear criteria still are a limiting factor to the number of projects to propose compared to the most excessive case.

5.6 Administrative capacity

Sufficient capacity is the precondition for any kind of administrative action (Scharpf 1997, p. 51; Wegrich and Hammerschmid 2017, p. 36). It comprises the diverse resources available for fulfilling tasks (Lodge and Wegrich 2014, p. 10). The background for studying capacity in the context of BVWP proposals lies in the resource requirements for preparing the proposals. Limited capacity could therefore be expected to result in fewer projects or in less elaborate project proposals or even in more projects as less effort can be dedicated to choosing projects. There is thus no automatism to be expected for the relation between the level of capacity and the number of projects proposed.

The main source to understand the role for administrative capacity in the BVWP proposal process have been the expert interviews with officials from ministries and subordinate authorities, in some cases aided by the organisation charts of the ministries at

approximately the time when preparation took place, and by answers to parliamentary questions.

Table 5.7: Administrative capacity: Subcategories and anchoring examples

Administrative capacity		
Sub-code	Positive	Negative
Ministerial staff level	'We have quite some rail-related sections in our division of the Ministry.' (BW-01)	'We do not have that many staff, that we could divide tasks.' (SL-02)
Subordinate authorities	'We have [...] a common competence centre for the integral regular interval timetable.' (NW-01)	'That's hard in the rail sector. We have no distinct data, no distinct information, no distinct responsibility.' (RP-02)
Financial means	'From such means, that are generally available, we financed this [work by commissioned offices], but other things had to be postponed, that were not as urgent as the proposals for the BVWP.' (interview 4)	'We are not going to commission studies here for federal tasks. [...] The resources of the <i>Land</i> are limited in this regard [...].' (interview 2)
External expertise	'And then we [commissioned assessments] quite comprehensively for all of Nordrhein-Westfalen for all projects that we wanted to propose.' (NW-01)	'We decided this [...] without any advisory opinion, [...] because we know the federal level will check it.' (interview 3)

Administrative capacity emerges from the interviews as a chameleon. It takes the form of departmental staff, of subordinate authorities, of financial means to buy external expertise, and of good relations to other public or private actors for cooperation. All of these strengthen ministries' abilities to perform their tasks. The different competence structures the *Länder* have for road vs. rail construction, entail that administrative capacity in the road sector is considerably higher than in the rail sector. The anchoring examples in table 5.7 illustrate the variety among the *Länder*. I will discuss the different sources of capacity in turn.

Staff level was rarely cited as a reason to refrain from proposing projects, but it influenced the set-up of the process. The problem of low staff levels for project proposal was rather raised by small *Länder* (SL-02, TH-02 and SH-01). Mecklenburg-Vorpommern is a notable exception, as by definitions of population and economic size it is a small *Land*, but braved the task with 'a small powerful team' of five taking together officials from the ministry and subordinate authorities so that capacity was not felt as a limiting factor (MV-02). De-facto capacity often was a question of prioritisation, as more than one interviewee noted. The following quote is quite representative: '[Our resources] were sufficient for preparing the proposals as such, but to the detriment of other tasks,

as people were predominantly occupied with this task [of preparing BVWP proposals]; necessarily, other tasks, that a ministry has to fulfil as well, are sidelined.’ (interview 20) Given the generally perceived importance of the BVWP for the *Länder*, not investing in this task was obviously not an option: ‘When I see it from the perspective of effort, I would say, given the multi-billion Euro amount that is invested in the end, it is justified.’ (NW-01) What was an option, was to streamline the process and not engage in purely voluntary actions like public participation, extensive consultation with external actors, commissioning of studies and the like. A frequent answer to the question, why a *Land* had not engaged the public went along these lines: ‘The federal ministry for transport has – for the first time – prepared the BVWP with strong public participation. [...] Therefore we did not see the necessity to do the same thing again. It is also a giant administrative effort, and we do not have the capacities for that here.’ (interview 11).

The limited relevance of staff level for the proposal of projects can at least be partly explained as especially in the road sector, financial funds could to some degree be used to enhance capacity. Quite a few *Länder* commissioned studies or the preparation of rough planning documents from engineering offices. This also implied prioritisation of BVWP preparation over other ends, thus freeing or acquiring capacity for this task, in the words of an interviewee from Rheinland-Pfalz: ‘It meant weighing up: Shall we do it with our own forces, or shall we commission it? [...] we have the possibility to shuffle and say: This is more important now, we do this first.’ (RP-01) Again, some *Länder* drew a line here between what they had to do in order to fulfil the requirements for valid BVWP proposals and voluntary extra work, as e.g. the following quote makes clear: ‘We are not going to commission studies here for federal tasks. [...] The resources of the *Land* are limited in this regard [...]’ (interview 2)

Administrative capacity, of course, does not reside in the ministry alone, but has to take into account the availability of subordinate authorities as well. In the road sector, interviewees were well aware that beyond a certain amount, proposing more projects would produce no added value for the *Land* as they would simply lack the subordinate staff to carry out the more fine-grained planning before a project – BVWP approved and included in the extension law – could actually be built. Bayern has been cited as a high-capacity *Land* in this regard by others (interviews 11, 18).

In the rail sector, limits to capacity were identified in a lack of competences and consequently less developed subordinate authorities. Due to a specificity in the *Land*’s law on regional rail, this is especially acute in Hessen, where the *Land* has passed all responsibility for regional and local rail to other authorities (Law on regional public transport, ÖPNVG § 5 as of 2005), similarly, the respective law in Rheinland-Pfalz accords a rather restricted role to the *Land* (Law on regional transport, NVG § 6 as amended in 2011). All other *Länder* are named as responsible authorities for regional rail transport in their respective

laws. They used their transport associations' (e. g. the VBB in Berlin and Brandenburg) or *Land*-owned transport companies' (e. g. VMV in Mecklenburg-Vorpommern, nah.SH in Schleswig-Holstein, NASA in Sachsen-Anhalt, the former NVS in Thüringen) competence and knowledge especially on regional rail in order to inform their proposals. The NASA in Sachsen-Anhalt is an exceptional case insofar as it had a very prominent role in actually drafting the first proposal list of rail projects, that also was – with one more project added – the list finally proposed to the federal level (ST-03). Some *Länder* consulted their transport associations along with other interest groups (BW-02, SN-01).

All considered, there evidently has been capacity in all cases to fulfil the task at hand even though with different levels of strain. Capacity cannot plausibly be linked to more or less projects proposed as there are very different ways to arrive at project proposals with diverging demand levels for the respective ministerial units and authorities. There is, however, evidence that a perceived lack of capacity led *Länder* to adopting a more simple process with less voluntary elements. Thus, whether *Länder* walked the extra mile of engaging in public participation or pre-assessing projects hinged on the respective level of administrative capacity, broadly understood.

The elements of capacity identified in the material point to it that an assessment of capacity needs to take into account a balance of resources and tasks as well as their respective timing. While in some cases the differences are obvious, in most cases, it is hard to determine, whether or not administrative capacity is *de facto* high or low, as at the end of the day this boils down to individual perception. Among the obvious high-capacity cases in the rail sector are Baden-Württemberg and Nordrhein-Westfalen who certainly have an unusually high administrative capacity for rail planning given the various specialised sections in the one case and a dedicated competence centre in the other (compare the respective quotes in table 5.7 on page 153). In the road sector, Bayern stands out both in its own perception and in that of others.

Capacity for preparatory studies at times could be spared by relying on input from third parties. Numerous economic or regional actors have contributed studies and advisory opinions that helped decision-making in their respective *Land*. This will be discussed in the next section.

5.7 External actors

Ministerial decision-making does not take place in a vacuum, and as a variety of interests are impacted by infrastructure planning, such interests by third parties are articulated in the context of BVWP proposal preparation as well. These interests can either be 'invited' by the decision-makers out of consideration for legitimacy or technical information, or they can create 'invented spaces' by entering the process out of their own initiative to

lobby for or against certain projects (Kersting 2013, p. 271). Fora for invited articulation of interests involve consultations targeted at specific interests, involvement of lower administrative levels, reaching out to the public at large, or geographically limited conferences that bring together diverse actor groups. The manifestations of these different categories in the material are presented in table 5.8.

In many cases, the input received from external actors could only be gauged from the expert interviews, unless formalised channels for local participation or some kind of public forum had been used. In the latter cases, supporting material could be retrieved to verify such contacts and activities, but especially when it comes to consultations with economic actors, the interviews are the sole source of information.

Table 5.8: External input: Subcategories and anchoring examples

External input		
Sub-code	Positive	Negative
consultations with economic actors	'Therefore we talked with many stakeholders, i. e. enterprises, rail transport authorities and Chambers of Commerce and Industry or other institutions.' (NW-02)	—
collection of proposals from local entities	'An encompassing participation is important. Last year, we asked the municipalities, the regional councils as well as the regional association <i>Ruhrgebiet</i> to hand over their proposals for an assessment.' (Landtag Nordrhein-Westfalen 2013a)	'We didn't inquire, but [...] had a look whether there were decisions [by local councils] present that implied that this is urgent.' (SH-01)
regional conferences with different types of actors	'In addition, there have been regional conferences in all four administrative districts in April.' (Landtag von Baden-Württemberg 2013a)	'We did not do regional conferences or anything.' (HE-02)
public consultation	'We prepared a list of proposals, that we put online for public participation.' (SN-02)	'Apart from this [information], a specific public participation is not envisaged for the proposal of Hamburg's projects.' (Bürgerschaft Hamburg 2012)

In times, when public participation is more and more treated as a norm (Wesselink et al. 2011, p. 2688), there is hardly any arguing against openness for external input. In some cases, this norm has made it into coalition agreements as e. g. in Schleswig-Holstein: 'Citizens have to be involved intensively [in transport infrastructure planning] in order to

increase acceptance and reduce risks for follow-up costs.’ (SPD/Grüne/SSW Schleswig-Holstein 2012, p. 27; similar also in: SPD/Grüne Niedersachsen 2013, p. 61; CDU/SPD Sachsen-Anhalt 2011, p. 56) Seven *Länder* opted to involve the broader public for the selection of road projects to propose, and three of them did the same for rail projects. The difference between the transport modes once again mirrors the different competences that the *Länder* have in this respect. Reasons cited for engaging the broader public involve the above-mentioned general expectation, as formulated very clearly by an interviewee in Sachsen: ‘I think there is no way around it. Already the whole political environment expects public participation.’ (SN-02) Such a view, of course, carries the risk of introducing participation by ways of institutional isomorphism for purely symbolic reasons (Fink and Ruffing 2015, p. 256). However, public participation is also attributed an early-warning function: ‘When planning projects, we often have strong objections locally, from the side of citizens’ initiatives. And so we wanted to find out in advance, which projects would have no chance of realisation, because everyone is against it.’ (BB-02). These considerations point to it that public participation can be conceptualised as a serious negotiation attempt between ministries and third actors – the ability of third actors to hinder policy implementation solves ‘the problem of faithful implementation’ (Scharpf 1997, p. 117) of the negotiation result.

Still, for reasons of formal responsibility, expectation management, as well as administrative capacity not all *Länder* engaged the public in preparing their BVWP proposals. The dominant argument raised against engaging the broader public was that there would be a consultation process for the BVWP on the federal level anyway and, thus, no need for an additional participation process on the *Land* level. This was framed as ‘a question of the respective competences’ (BE-01). Such additional participation, combined with extensive proposals, was even deemed as nurturing wrong expectations in the participants, as even the proposal of a project by the respective *Land* would by no means predetermine actual construction. One interviewee summarised the problem thus: ‘The normal citizen does not understand, what it means to have a proposal for the BVWP [...] To them, you suggest with the proposal, that the project will be realised.’ (BY-03) These worries mirror similar findings from the literature that stress expectation management and frustration potential when designing public participation procedures (Fink and Ruffing 2019b, p. 235; Glaab 2019, p. 109). Some smaller *Länder* also cited the administrative effort that they were unable to shoulder under these circumstances (compare subsection 5.6 on administrative capacity).

Another variant of gathering external input focusses not on the broader public but attempts to bring together a wide variety of actors in so-called regional conferences. Typically, these involve actors from local authorities, public interest parties (the so-called *Träger Öffentlicher Belange*, TÖB), economic actors, civil-society groups, and at times also

the interested public. In contrast to public consultation processes that rely on written feedback to a given task or proposal, regional conferences are on-site events, where a certain degree of discussion about a presented input is possible. Ministerial actors used these fora to ‘achieve a certain understanding [of the process and their proposals] among the actors [...] and to again receive input from the regions in the context of these events.’ (ST-01) The result, however, by and large produced little changes to the administrative proposal with the exception of few projects that were dropped or added (BW-01, ST-02, Straßenbauverwaltung des Landes Niedersachsen 2013, pp. 2–3).

Even where there was no official public participation process, *Länder* often sought consultation with local authorities. In the case of Nordrhein-Westfalen, involving local actors was mandated by law (Law on *Land* planning, LPiG § 9 as of 2010). There as well as in Hessen and to a more moderate extent also in Niedersachsen, proposals were collected from local entities, which then formed the basis for the proposal lists to be prepared or were added in the aftermath. Other *Länder* consulted local actors along with other interests in regional conferences or during public consultations or, in the case of Mecklenburg-Vorpommern, explicitly in cases where projects were already known to be contentious. In general, few changes resulted from such consultations – be it for the small number of municipalities answering or that proposals already matched the administrative proposal. Rheinland-Pfalz provides an example where both aspects converged: ‘And then there were very few – I think, there were three or four in our *Land* – mayors who lobbied for a project, but we had already included those.’ (RP-01) Once again, it is more a difference in individual projects than in the overall picture.

Consultations with economic actors usually took place in less formalised settings and added individual projects to the list. While some *Länder* contacted important economic actors and consulted with them on the topic of BVWP proposals, others took a more passive stance and only discussed projects with actors who approached them on their own initiative. In general, a favourable view by economic actors of the projects proposed was deemed desirable as ‘it helps, of course, if a region in terms of the economy supports such a project [...]’ (MV-02) and ‘it doesn’t help at all to propose a project where the Chambers of Industry and Commerce say: That is nonsense.’ (SH-03) Another rationale was to win additional advocates for certain projects who could help lobbying for the projects on the federal level: ‘That means, we would have had a chance, when one or the other project would have been [at risk of being assessed negatively], to mobilise third parties to write to the federal level and support us.’ (interview 7) Thus, especially in the consultation with economic actors, aspects of an exchange between economic actors and ministry are witnessed (Bouwen 2002, 2004), where the former gain access to the decision-making process and the latter gains support vis-a-vis the federal level.

Even where no specific consultations took place, projects were often rooted in long-standing contacts with third actors. In some cases – more often for rail projects than for road projects – no specific consultations took place within the decision-making process for the BVWP. It is, however, imperative to note, that this does not mean, that projects were invented out of the blue. In all *Länder*, interviewees have reported continuous contacts to local or regional actors and for rail projects also with the rail infrastructure company *DB Netz* via the respective regional consultants as well as continuous contacts with international partners. Thus, networks of specialised actors are indeed present that are characterised by regular interaction and whose members' input is valued by the ministries (Scharpf 1997, pp. 136–137; Jenkins-Smith et al. 2018, p. 139).

A problem that arose in the interaction with external actors was identified in the lack of understanding of the entire BVWP process. Thus, ministerial officials reported that the proposals by local actors at times were 'not characterised by much subject-matter knowledge.' (interview 39) Civil-society groups sometimes contributed proposals that had a much more general scope than what the *Länder* could plausibly take up in their somewhat formalised proposals to the federal level and were simply not eligible for the BVWP. An interviewee e.g. remembered that an environmental group 'came with the demand to include bike transport, that is however not subject to the Federal Transport Infrastructure Plan.' (SN-01) Such misunderstandings of the aim of consultation processes are, of course, not unique to the BVWP procedure and are found in other policy areas as well (for the example of electricity network planning: Fink and Ruffing 2019a, p. 209).

The involvement of external actors alone does not necessarily imply any effect on the overall outlook of the decision thus made. In many cases the proposal lists prepared by the bureaucracy were not altered to a great extent after consultations with externals, as one interviewee put it: 'The changes were surely there, but they were not overwhelming.' (BW-01) Individual projects were added or deleted, but the overall picture stayed very similar to the administrative proposal. This is especially true for the road sector, where the *Länder* proposed comparatively many projects, so that five projects more or less did not make a fundamental difference. In the rail sector this might have been numerically easier, however, inclusion of new projects was rare there as well.

The involvement of external actors, however, did repeatedly make a difference for individual projects. In all *Länder*, where public participation was in place or where other forms of consultations were held, single projects were added to the proposal list or were deleted from the list. That the changes were not more pronounced can be traced back to several reasons:

- public opinion on projects is seldom unequivocal: ‘I think this is a general problem. Those who are for a bypass road, are mostly those who live close to the main through-road [...] and then on the opposite side, those who live on the outskirts, the exurbs, who would maybe get the bypass some day.’ (MV-02)
- projects proposed by local actors partly failed to meet basic criteria for the inclusion in the BVWP: ‘When there is no main through-road, we cannot build a bypass. [...] Or someone wanted to have a state road, that’s the wrong area of competence then.’ (NW-02)
- reaction to proposals was based on false assumptions: ‘[Those opposed to the project] took photographed 1:25.000 [very rough] construction plans and determined on site where the road would be [...] – you could not see that from the plan.’ (BY-01)
- many projects simply draw no public interest: ‘In general [...] you do not really build new [rail tracks], but you electrify. That does not interest the citizen that much.’ (SN-02)

Summing this up, even though ministerial bureaucracies are confident about their or their subordinate bodies’ technical competence to propose adequate projects for the BVWP, almost nowhere have project proposals been prepared without reference to some input by third actors. The ‘mantra’ of public participation is valid here (Wesselink et al. 2011, p. 2688). The reasons to do so vary but usually circle around legitimacy and an early-warning function, thus picking up on the notion that especially drastic changes risk alienating parts of the public (Tosun et al. 2015, p. 166). On the downside, ministerial officials noted that proposals along with their very rough pre-planning were often interpreted as far more advanced planning stages by the broader public, and that even administrative actors from other levels or other portfolios were not always aware of the meaning and the scope of the BVWP. Before this background, the fears voiced in some *Länder* that public participation might lead to wrong expectations is surely not unfounded and adds to similar findings in the literature (Fink and Ruffing 2019b, p. 235; Glaab 2019, p. 109). The direct impact of third-actor participation was usually rather limited and concentrated on a few individual projects.

5.8 Results

The analysis aims at uncovering determinants for procedural set-up within ministries as well as identifying determinants for the outputs produced. The task for the qualitative content analysis in this context was to structure the empirical material at hand and identify potential determinants of ministerial behaviour. To that end, the analysis started with very broad categories derived from theoretical considerations. Subcategories were derived inductively from the material and illustrated with each a positive and a negative example from interviews or parliamentary documents or – in the case of party positions – from election programmes. These examples in the same time delineated the variation present among the cases.

The resulting picture shows some general tendencies for ministerial bureaucratic work and uncovers some sources of variety between the decision-making processes in the *Länder*. First, the dialogue model of policy-preparation still seems to hold in the context of BVWP proposals, and ministerial outputs are produced jointly by the ministerial top and the respective bureaucracy on the basis of the programmatic orientation present at the political top of the ministry. Second, while the proposal of BVWP projects was no task to be accomplished as a side issue, the salience with which it was treated differed from explicit dealing with the topic on the coalition level to rather routine low-level handling that was waved through on the political level. Third, the decision-making processes in den *Länder* for their BVWP proposals differ in the channels of direct political influence used, their use of distinct concepts, and the involvement of external actors, thus in the complexity of their decision-making process. The impact of political influence and of external actors is rather limited individually, as it might affect individual projects but does not impact the overall picture. Still, it cannot be ruled out that these small influences might add up. Fourth, administrative capacity has a variety of sources and can hardly be pinned down to one specific aspect. For the purpose of this single-policy study, the perception of capacity by the actors themselves is taken as the relevant marker. Capacity, as perceived by the actors involved, widens or limits the extent to that some of the procedural variants displayed by the *Länder* – e. g. the use of public participation – can be used for the decision-making process. Higher process complexity, which means involving more actors and additional steps in this context, requires higher capacity.

A preliminary assessment of the five hypotheses formulated in the theory chapter can be made as follows:

Hypothesis 1: *Ministerial policy output follows the policy preferences of the respective minister when those are in line with higher-level preferences in multi-level settings.* This hypothesis is only partly plausible in light of the content analysis. Both ministerial policy preferences and the preferences of the federal level showed up as potentially influential for ministerial policy outputs. While a translation of ministerial preferences into outputs is the

default option and helped by widespread functional politicisation, the interaction with federal-level expectations is not clear. Especially for the road sector, the hypothesis gains plausibility, as the *Länder* manage long-distance roads on behalf of the federal level and ministerial officials thus perceive a double obligation towards their *Land* as well as towards the federal level. For the rail sector, the hypothesis appears much less plausible, as ministerial outputs – in terms of rail project proposals – have at times been formulated in explicit contradiction to federal expectations. The effect of the joint appearance of policy preferences and higher-level expectations will be modelled more clearly by a QCA in the next sub-chapter.

Hypothesis 2: *Ministerial policy output is influenced by the interaction with third-party actors.* This hypothesis, broadly understood, can be confirmed by the content analysis but has to be qualified for the extent of influence exerted. Influence of third-party actors has been identified as pervasive but usually with limited effect. Third-party actors have most potential to influence the inclusion or non-inclusion of individual projects in the ministerial output. This, however, hardly changes the overall tendency of the ministerial output. Furthermore, the influence of third-party actors is often hampered by a lack of understanding of the policy as such and its background – here: the BVWP process. Nevertheless, it remains possible that the individual effects of third-party actor involvement add up and, together with other procedural steps, do have an effect on the overall policy outlook. In the second step of the analysis, third-party involvement is therefore subsumed under process complexity.

Hypothesis 3: *In complex decision-making processes, the policy output produced does not necessarily conform to the minister's policy preferences.* This hypothesis is plausible in light of the content analysis. Internal decision-making rules as one aspect of a complex decision-making process are – among other things – devised to insulate the decision-making process from political interference. Consequently, a departure from ministerial policy preferences becomes possible. Again, such a relationship can be modelled more clearly via QCA in the next sub-chapter.

Hypothesis 4: *When the topic under decision is salient, a complex decision-making process is set up.* This hypothesis finds some support in the content analysis. However, such a clear conditionality cannot be inferred from the content analysis alone. Still, there are hints that complexity might at times be instrumental for pursuing certain policy goals. Most notably, it has been argued by interviewees that pre-defined decision-making rules allow defending decisions that depart from the status quo. Hence, there is a plausible interest in complex decision-making processes, when the respective policy is contentious. The QCA will shed more light on whether the link between salience and complexity is a general pattern.

Hypothesis 5: *High administrative capacity is a necessary prerequisite for a complex decision-making process.* This hypothesis is plausible in light of the content analysis. Capacity has indeed been raised as a co-determinant of how processes are designed. Especially a tendency to refrain from additional procedural steps like involvement of third actors or elaborate concept development has been attributed to a lack of administrative capacity. Given a perception-based interpretation of administrative capacity, the hypothesis is tentatively confirmed. It is, however, worth bearing in mind that this capacity is rooted in quite different conditions ranging from staff levels over financial means to prioritisation within the ministry. Either way, complex processes are not chosen unless the respective capacity allows it. QCA will be used to check whether this holds across all cases studied.

Considering all of the above, five influential factors emerge from the discussion of the content analysis, that I will use to model the theoretical argument in a condensed form in QCA. Figure 5.1 on the next page illustrates the path from the content analysis presented here to the five factors that will be used as conditions in QCA. The differently shaded shapes give an impression of which subcategories will inform calibration of the respective condition. The five conditions are:

- policy preferences of the minister's party
- salience of the topic of BVWP proposal preparation in light of election manifestos, coalition treaties and de-facto commitment of ministers
- process complexity in terms of involvement of third actors and voluntary procedural steps taken
- administrative capacity in terms of ministerial staff and subordinate authorities as well as possibilities to commission studies and the preparation of documents
- willingness to anticipate and fulfil federal expectations for 'realistic' and strictly long-distance oriented project proposals¹⁶

Against the backdrop of diverse *Länder* positions and strategies, the task for the next analytical step is to identify more encompassing patterns in the decision-making processes among the *Länder* ministries. To that end, the categories discussed and developed here – programmatic position, salience, process complexity, capacity, anticipation of federal wishes – will be used as conditions for QCA. By means of QCA, the cases will be analysed, first, in light of determinants of process complexity, and second, with a view to explaining ministerial output.

¹⁶ As I have explained in section 3.4.2, this condition poses a problem as an adherence to the federal expectations of rather restricted project proposals would be in favour of a transport transition in the road sector but run counter to a transport transition in the rail sector. Therefore, the condition is re-cast as *transition-oriented behaviour towards federal expectations*.

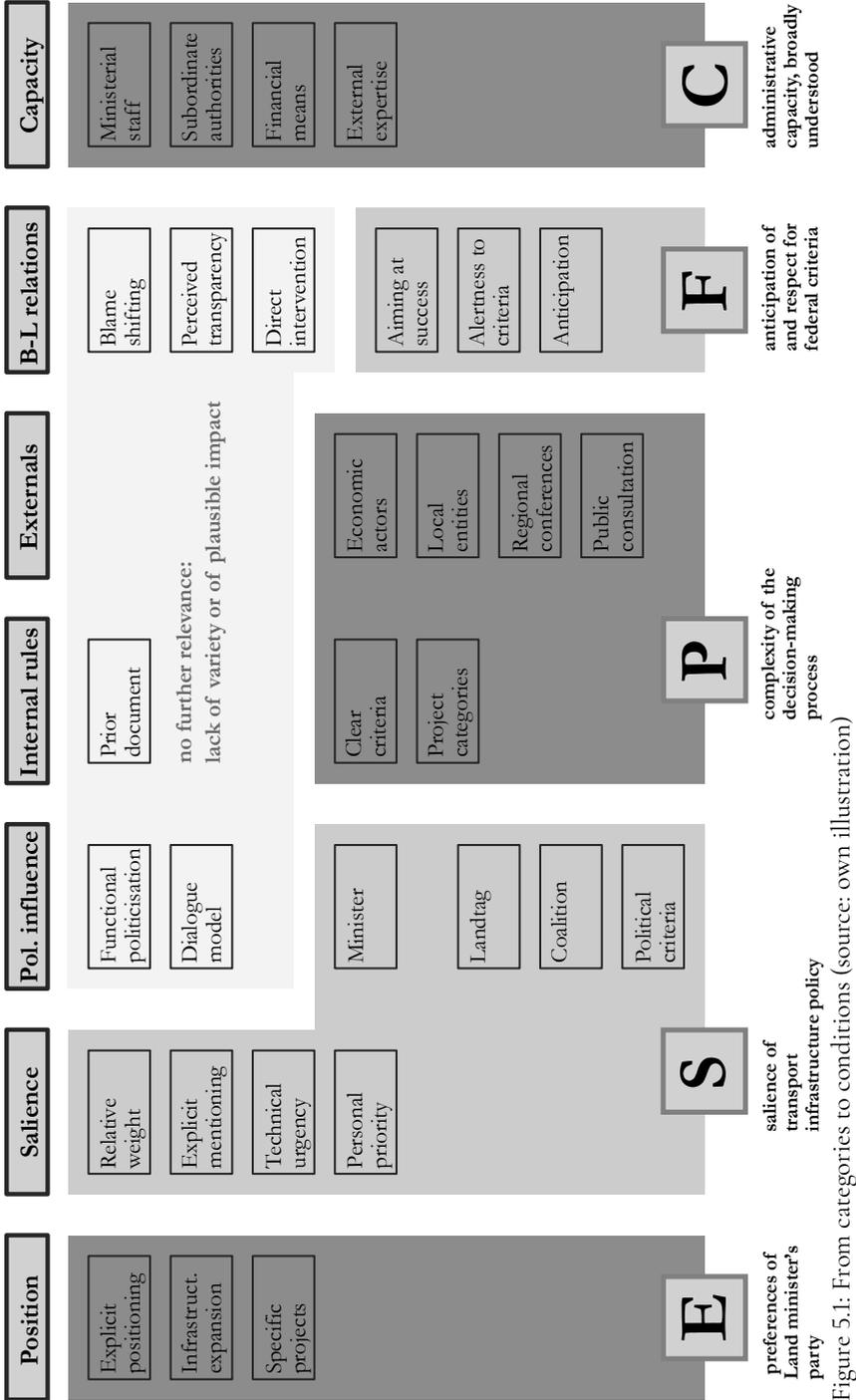


Figure 5.1: From categories to conditions (source: own illustration)

6 QCA

The second step of the empirical analysis makes use of qualitative comparative analysis (QCA) to systematise the relationships between party-political preferences, salience, process complexity, capacity and anticipation of federal expectations as proposed by the theoretical framework and as hinted at by the content analysis. QCA serves as a means to systematically identify patterns of necessary and sufficient conditions for the setting up of a complex intra-ministerial decision-making process and for the production of transition-oriented outputs in the sub-national ministries.

As spelled out in chapter 3, qualitative Comparative Analysis is a strategy for systematic analysis of cases based on Boolean algebra (Ragin 1987). It operates on the notion of logical combinations of set memberships of cases, some of which might lead to a specified outcome, while others do not. It differs from variable-oriented research in its explicit recognition of the explanatory power of combinations of conditions rather than individual independent variables (causal complexity), the possibility of multiple explanatory

paths (equifinality), and the asymmetric relation between explanatory conditions and outcome, which means that a combination of conditions leading to an outcome does not automatically imply that from the presence of an outcome the existence of this specific combination could be inferred (Ragin 2008, p. 15).

In this analysis, fuzzy-set QCA is used. This means that cases can be described as having full set-membership (coded as 1), partial set-membership (coded as 0.75), partial non-membership (coded as 0.25), or non-membership in a given set (coded as 0). The guidelines for calibration – thus, for the determination of set-memberships for all cases – have been presented in chapter 3.4 in tables 3.4 on page 96 and 3.5 on page 97. The resulting membership values that rely on the case knowledge gained in the content analysis are provided in appendix D.

This chapter will proceed in four steps. First, I will re-iterate the theoretical expectations and cast these in form of algebraic equations. The following second and central section contains the QCA as such: It presents the QCA for the outcome of having a complex decision-making process, and the one for obtaining a transition-oriented ministerial output. The third section engages in systematic theory evaluation by putting the result of the QCA against the theoretical expectations formulated in section 6.1. The final section formulates the conclusion of the second analytical step.

6.1 Expected set relations

For the use in QCA, it is helpful to re-cast the theoretically derived hypotheses in Boolean terms. Five hypotheses have been extracted from the theoretical discussion in chapter 2. In order to maximise the analytical benefit of QCA, these hypothesis can be sharpened further into spelling out the expected necessary and sufficient conditions for the outcomes to be achieved. This makes them fit for use in formal theory evaluation, which allows a more nuanced assessment of how well theory and empirical findings fit each other (Thomann and Maggetti 2020, p. 374).

The QCA part of the analysis will take two steps, that are guided by their own theoretical expectation(s) each. The first step concentrates on the procedural set-up of the ministerial decision-making process. Therefore a theoretical expectation is formulated about under what circumstances a complex decision-making process is expected to occur. The second step focusses on the output of the ministerial decision-making process. Here, theoretical expectations are formulated about under what circumstances an output will be produced that diverges from expansive car-centred infrastructure planning.

The five theoretically backed hypotheses are:

Hypothesis 1: *Ministerial policy output follows the policy preferences of the respective minister when those are in line with higher-level preferences in multi-level settings.*

Hypothesis 2: *Ministerial policy output is influenced by the interaction with third-party actors.*

Hypothesis 3: *In complex decision-making processes, the policy output produced does not necessarily conform to the minister's policy preferences.*

Hypothesis 4: *When the topic under decision is salient, a complex decision-making process is set up.*

Hypothesis 5: *High administrative capacity is a necessary prerequisite for a complex decision-making process.*

Hypothesis 4 and 5 directly relate to the first QCA, that is interested in the set-up of the ministerial decision-making process. Following these two hypotheses, I expect that a complex decision-making process will be designed in *Länder* with high administrative capacity and where the topic of long-distance infrastructure planning is perceived as salient. As capacity limits the ability of a bureaucracy to manage a complex decision-making process, this condition is even expected to be a necessary one. Salience is expected to be sufficient for the choice of a complex process in conjunction with high administrative capacity. In Boolean terms this reads as: $S^*C \Rightarrow P$.

Hypothesis 2 could already be assessed in the course of the content analysis and will not be made subject to a QCA. As has been explained when presenting the results of the content analysis, third-party involvement will be subsumed under process complexity. Therefore, hypothesis 2 will not be assessed individually in the QCA.

Hypothesis 1 and 3 formulate expectations for the output of the decision-making process and thus relate to the second QCA which takes the presence of a transition-oriented policy output as its outcome.¹⁷ Taking both hypotheses together, there is reason to believe that the output of a ministry will first and foremost be shaped by the party-political preferences of the minister unless the decision-making procedures themselves or considerations of higher-level expectations insulate the decision from direct political influence. Before a background of a generally responsive bureaucracy, the programmatic position of the political leadership of the ministry ought to be the default when forecasting ministerial outputs. A complex decision-making process with clear rules and involvement of many different actors could, however, produce unexpected results that do not reflect the initial political position. In the present context, I expect that a transition-oriented election programme is sufficient for achieving a transition-oriented output in conjunc-

¹⁷ Note here again that the policy-analytical output in the same time serves as the methodological outcome (Sack and Sarter 2018, online appendix p. 1).

tion with the non-occurrence of a complex process. As the preparation of the BVWP is a multi-level process, the stance that *Länder* take towards federal expectations is decisive for the output they produce. Thus, I expect that a transition-oriented election programme is sufficient for achieving a transition-oriented output in conjunction with transition-oriented behaviour towards federal expectations. In Boolean terms this reads as: $E^* \cdot P + E^* \cdot F \Rightarrow Q$.

6.2 Analysis for two outcomes

The following two subsections present the QCAs for the two outcomes ‘having a complex decision-making process’ (QCA 1) and ‘having produced a transition-oriented output’ (QCA 2).

The two analyses pertain to different parts of the theoretical argument. While QCA 1 addresses the design of the intra-ministerial decision-making procedure, QCA 2 is interested in the output from this procedure. The outcome of QCA 1 thus is one of the conditions for QCA 2. Figure 6.1 illustrates, how the two analyses are related.

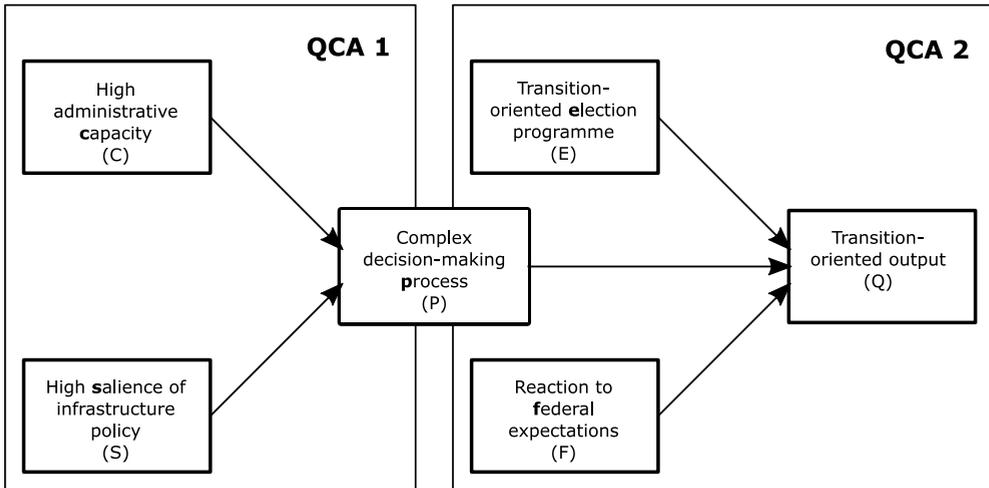


Figure 6.1: QCA 1 and 2 (source: own illustration)

Conforming to good practice in QCA research (e.g. C. Q. Schneider and Wagemann 2010; Buche 2017, ch. 1.3), the same recurring details will be addressed for both steps: For each QCA, I provide truth tables and solution terms as well as a brief justification of the respective consistency threshold chosen. For both main QCAs, I conduct an analysis for the negated outcome as well and spell out the respective consequences for the analysis – in the present case, the analyses for the negated outcome are entirely unproblematic.

All truth tables that are not directly provided where they are discussed in the text can be found in appendix E.

In each of the two subsections, I will also discuss the robustness of the solutions derived. The necessity for robustness checks for QCA results from the degree of discretion that the method grants to the researcher (C. Q. Schneider and Wagemann 2012, pp. 284–285). As in each empirical research endeavour, QCA involves certain decisions by the researcher that could – with good reasons – also have been taken otherwise. This is, of course, nothing specific of QCA, but a well-known caveat of all empirical research – think of the choices made in large-*n* variable-oriented analyses regarding operationalisation, measurement, and the treatment of outliers. In QCA, potentially consequential choices concern the calibration of conditions as well as thresholds for consistency in the truth table (C. Q. Schneider and Wagemann 2012, p. 285). Each of these choices could have influenced the outcome of the analysis. The task for robustness checks is to ascertain that the results obtained indeed reflect patterns in the empirical material.

The robustness of the QCAs will be tested with regard to changes in calibration and consistency thresholds. In this, I roughly follow the protocol proposed by Oana, C. Q. Schneider and Thomann (2021). In that sense, the robustness of a QCA is high when the sensitivity of the solution to changes in the calibration and in consistency thresholds is low. To that end, some calibrations are changed as well as the consistency threshold for the truth table is decreased stepwise to a minimum of 0.75. All these new solutions are then compared to the original ones individually as well as jointly. For the joint comparison, the so-called ‘robust core’ is determined. The robust core is the intersection of all test solutions with the initial solution – thus, it is the part of the initial solution that is impervious to all changes that have been made (Oana, C. Q. Schneider and Thomann 2021, p. 147). The solutions are compared for consistency and coverage as well as for the specific cases covered.

As a test case for the calibrations underlying the two QCAs presented above, a new dataset is constructed where the calibration is changed in all cases, where there is reason to believe that the original calibration might be shaky. Both analyses are then performed with this new dataset. Table 6.1 on the next page lists all calibration changes considered with a brief comment.

Additionally, I perform cluster diagnostics (R. G. Castro and Ariño 2016; Oana, C. Q. Schneider and Thomann 2021, pp. 159–160) in order to check whether the identified solution terms only hold for certain subgroups of the data. One such subgroup are the city states – Berlin, Bremen, and Hamburg – versus the area states. Another grouping runs along lines of centrality and distinguishes *Länder* with an outer border from those situated inland – the latter comprising the city states plus Hessen, Sachsen-Anhalt, and Thüringen. A third possible grouping is wealthy *Länder* – Baden-Württemberg, Bayern,

Table 6.1: Test for robustness: Calibration changes

Case	Cond.	Change made	Comment
HE_road	S	0.75 → 0.25	disregarding technical urgency
HE_rail	S	0.75 → 0.25	disregarding technical urgency
ST_rail	S	0 → 0.25	more focus on coalition agreement
BR_road	C	0.25 → 0.75	higher weighting of service agreement
BR_rail	C	0.75 → 0.25	lack of initiative read as lack of capacity
HA_rail	C	0.75 → 0.25	restricted information base
ST_road	C	0.25 → 0.75	staff level low but not problematic
ST_rail	C	0.25 → 0.75	interpreting transport association as part of administration
TH_road	C	0 → 0.25	commissioning was possible
BE_road	E	0.75 → 0.25	e-mobility is not status-quo defying in terms of infrastructure
ST_road	E	0 → 0.25	positioning implicit but unclear
TH_road	F	0.75 → 0.25	no explicit mentioning of federal criteria

Hamburg, and Hessen – versus the rest. Even though originally proposed for the use with panel data (R. G. Castro and Ariño 2016), cluster diagnostics are equally useful for the identification of relevant group structures in other data (Oana, C. Q. Schneider and Thomann 2021, p. 159). It relies on a comparison between the consistencies of the overall ('pooled') solution and the solutions applied to the specified groups. R. G. Castro and Ariño (2016) propose a threshold of a distance of 0.2 between these consistencies, above which serious clustering should be assumed and inspected further (R. G. Castro and Ariño 2016, pp. 67, 71).

In the following, I present and discuss, first, the analysis for the outcome of having a complex decision-making process, and second, the analysis for the outcome of having a transition-oriented ministerial output.

6.2.1 Process complexity

In the first QCA, I am interested in the determinants of setting up a complex decision-making process in the sub-national ministries when deciding on project proposals for the BVWP 2030. I analyse whether the topic of transport infrastructure being salient and administrative capacity being high is necessary or sufficient for a ministry to make use of a complex decision-making process. The rationale behind this is twofold: First, the salience of a topic under decision has been argued to determine whether a decision is rather made at the political level or by the bureaucracy (Gormley Jr. 1986, p. 603; Bækgaard, Blom-Hansen et al. 2015, p. 469). In contrast to the literature, I have argued that there is reason to assume less direct political control over such decisions. Second,

administrative capacity has been discussed as the sine qua non for any kind of bureaucratic action (Scharpf 1997, p. 51; Wegrich and Hammerschmid 2017, p. 36). Setting up a complex decision-making process, that involves more steps than are strictly obligatory, causes an additional workload for the bureaucracy. Consequently, it is plausible to expect voluntarily complex processes only where administrative capacity is high. The analysis for necessary conditions is undertaken first, the one for sufficient conditions afterwards. A discussion of robustness tests ensues. A brief summary closes this subsection.

The analysis for necessity relations between the outcome set and the sets defined by the conditions implies searching for conditions, where cases have consistently equal or lower membership scores than in the outcome – hence, whenever the outcome is present, the necessary condition would be present as well. The analysis for determinants of a complex process reveals no single necessary conditions fulfilling this criterion. Still, administrative capacity comes close. Figure 6.2 illustrates this. The bulk of cases fits neatly in the lower left or the upper right quadrant and therefore conforms to the pattern that a complex process is only to be had with high administrative capacity. Still, there are the two cases from Sachsen-Anhalt (*ST*) in the upper left quadrant, contradicting such a claim. Thus, it is to be expected that high administrative capacity will play an important role in explanations of complex processes, but it is not in itself necessary for them.

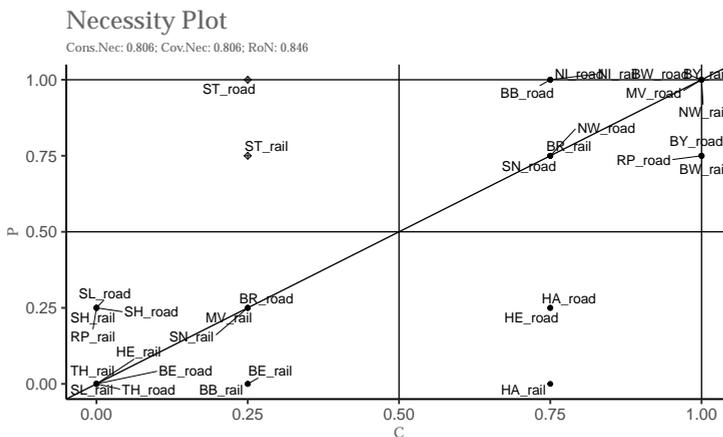


Figure 6.2: Necessity plot for $C \Leftarrow P$

In order to assess the sufficiency of conditions for producing the outcome, cases are sorted according to their membership in combinations of conditions in a so-called truth table. It is assessed for each row, based on the memberships of the respective cases in the outcome as well as on the row's consistency, whether the respective condition is sufficient for having the outcome or not. Rows are ordered according to their internal consistency for having the outcome. The lower the consistency (*incl*), the less homogeneous the cases

regarding the outcome. The cut-off value for consistency is set at 0.82. The truth table as given in table 6.2 ensues. Only the first row with twelve cases is deemed sufficient for the outcome. In principle, the second row would still be consistent enough to be included within the boundaries of good practice for QCA (cut-off values should be no lower than 0.75), however, that would make the result less robust to slight changes in the calibration as I will discuss below.

Table 6.2: Truth table for the outcome ‘Complex decision-making process’

S	C	OUT	n	incl	PRI	cases
1	1	1	12	0.830	0.784	BB_road, BR_rail, BW_rail, BW_road, BY_rail, HA_road, HE_road, NI_rail, NI_road, NW_rail, NW_road, RP_road
0	1	0	4	0.800	0.688	BY_road, HA_rail, MV_road, SN_road
1	0	0	7	0.421	0.214	BE_road, HE_rail, RP_rail, SH_rail, SH_road, SL_rail, ST_road
0	0	0	9	0.342	0.138	BB_rail, BE_rail, BR_road, MV_rail, SL_road, SN_rail, ST_rail, TH_rail, TH_road

OUT = sufficient for having the outcome P; n = number of cases; incl = consistency; PRI = prevalence of explaining the outcome over explaining the non-outcome

Minimising the rows that have been found to be sufficient for the outcome leads to the conservative, thus strictly descriptive, solution. As there are empirical cases for all combinations of conditions, thus the truth table is fully specified, it is neither possible nor necessary to produce any other solution type. The ensuing solution $S^*C \Rightarrow P$ stipulates that the joint occurrence of high administrative capacity and perceived salience of long-distance infrastructure planning is sufficient for a Land ministry to opt for a complex decision-making process. High-capacity cases where the topic is perceived as salient would thus add non-obligatory steps to their decision-making processes. Table 6.3 presents the cases covered by this first solution.¹⁸

Table 6.3: Solution term and covered cases for QCA 1

S*C ⇒ P					
	inclS	PRI	covS	covU	cases
S*C	0.830	0.784	0.629	—	BB_road, BR_rail, BW_rail, BW_road, BY_rail, HA_road, HE_road, NI_rail, NI_road, NW_rail, NW_road, RP_road

inclS = consistency of the solution term; PRI = prevalence of explaining the outcome over explaining the non-outcome; covS = coverage of the solution; covU = unique coverage of the respective solution term

¹⁸ An asterisk denotes a logical AND. A logical OR is denoted by a plus sign.

Figure 6.3 illustrates the ability of this solution to explain the cases. In the ideal case, all entries would be above the diagonal line. Cases in the lower right quadrant are especially worrying, as they are included in the solution term but do not have the outcome. Despite the restrictive choice of the cut-off value for consistency, not all of the cases covered by the solution display the outcome. The problematic cases here are Hamburg and Hessen (both for road). They are high-capacity cases where the topic of infrastructure planning was deemed salient, but they did not opt for a complex decision-making process.

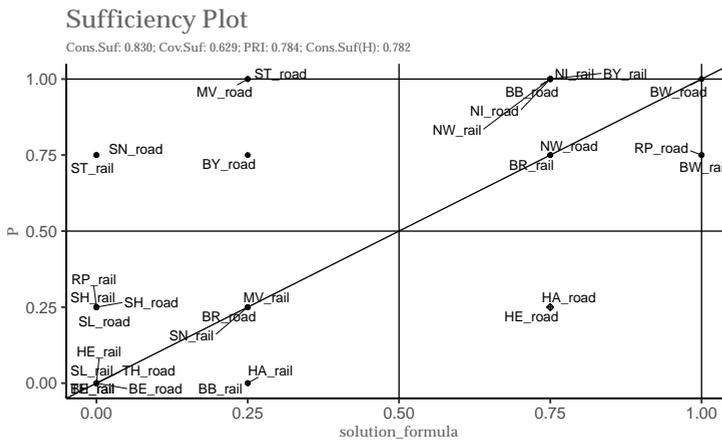


Figure 6.3: Sufficiency Plot for $S^*C \Rightarrow P$

An analysis of the negated outcome reveals no problematic or contradictory statements. The analysis reveals no necessary condition for the negated outcome. According to the analysis of sufficiency, the simultaneous absence of both conditions, salience and capacity, is sufficient for *not* having a complex decision-making process. The respective truth table and the ensuing solution term are provided in tables E.1 and E.2 in appendix E. This finding does not contradict the analysis of the outcome in its presence.

The deviant cases (*HA_road*, *HE_road*) merit some inspection. Notably, for these cases, technical urgency was considered when calibrating their salience. If the calibration is changed to disregard technical urgency – which makes sense, given that the theoretical argument focusses on attention paid to the topic from a political point of view – that mainly impacts the calibration of the Hessen cases (road and rail). The first row of the truth table becomes more consistent, while the consistency of the second row drops to 0.7, which is out of the question for inclusion as a sufficient row. The result of the minimisation process consequently remains the same and underscores the adequacy of only regarding the first row of the truth table as sufficient for bringing about a complex decision-making process. Considering also the second row would lead to different solution terms depending on whether technical urgency is considered in the calibration

or not, which illustrates the fragility of such a solution. Hamburg (for road) remains problematic. Table 6.4 summarises the results of the robustness tests.

Table 6.4: Robustness checks for QCA 1

Out.	Calibration	Thresh.	Solution	Cons.	Cov.	Deviant cases
P	no change	0.82	S*C	0.830	0.629	HA_road, HE_road
P	new dataset	0.82	S*C	0.870	0.645	HA_road
P	no change	0.75	C	0.806	0.806	HA_road, HA_rail, HE_road
P	new dataset	0.75	S*C	0.870	0.645	HA_road, HA_rail

Out. = outcome studied; Calibration = changes made in calibration of cases; Thresh. = consistency threshold for the truth table; Solution = minimised conservative solution; Cons. = consistency of the solution; Cov. = coverage of the solution; Deviant cases = cases covered by the solution but not having the outcome

The differences between the test solutions and the initial solutions in the first QCA, seeking sufficient conditions for having a complex decision-making process, are rather small. Except for one test case, all variations produce the same solution term: $S^*C \Rightarrow P$. The only test that diverges from this picture is the one with a lower consistency threshold and no changes in the calibration. As I have already discussed above, this solution would itself have to be considered non-robust and there are substantive reasons against actually choosing such a low threshold. For all other variations, also changes in the parameters of fit are very limited and therefore do not give reason for concern. One case, that is explained under the initial solution, but is sensitive to a plausible change in its calibration is *BR_rail* – it then becomes a non-deviant, but unexplained cases. Consequently, Bremen (for rail) does not contradict the statement of sufficiency, but the solution term might not provide a suitable explanation for this case either. Accordingly, S^*C is also the robust core, i. e. the intersection between the initial and all test solutions, and thus not contradicted by any of the test solutions. Table 6.5 on the next page summarises the comparison between initial solution and test solution. All in all, the solution $S^*C \Rightarrow P$ can thus be considered fairly robust.

The cluster diagnostics reveal only slight problems with regard to city states when the calibration is changed as table 6.6 on the facing page summarises. For all other configurations, distances are small enough to warrant no further scrutiny. This implies that the respective groupings are not relevant with regard to the outcome of having a complex decision-making process. The solution S^*C is (almost) equally consistent for the respective subgroups.

In order to identify possible effects of the city vs. area states clustering, I repeated the analysis with an additional condition ‘city’ that is 1 for city states and 0 for all others. The resulting truth table is given in table E.7 on page 262 in appendix E. Using a consistency threshold of 0.9 reflecting the sharp drop in consistency between the first two rows,

Table 6.5: Robust core for QCA 1

Robust core					
Description			Parameters of fit		
Model	Boolean Expression		Consistency	Coverage	
{S, C} ⇒ P	S*C		0.860	0.597	
Comparison with initial solution					
% of cases with Y > 0.5			% of cases with Y < 0.5		
Robust typical	Ambiguous	Unexplained	Robust deviant	Ambiguous	Irrelevant
60.00	13.34	26.67	5.88	5.88	88.24

Robust typical and robust deviant cases are covered by both initial and test solution.

Ambiguous cases are covered by only one of initial or test solution.

Unexplained and irrelevant cases are covered neither by the initial nor the test solution.

the initial solution S^*C is confirmed for all non-city states. Using a lower threshold, high capacity alone would already be deemed sufficient for non-city states to choose a complex decision-making process. The latter solution, however, introduces *HE_road* as a deviant case contradicting this broader statement of sufficiency.

As an additional check the same analysis is run with a condition 'border' instead of 'city' (truth table provided in table E.8 on page 263 in appendix E). This analysis confirms the more generous statement $C \Rightarrow P$ for all *Länder* situated at the outer German border. For these cases, this solution is highly robust to changes in calibration and consistency thresholds. It does, however allow no statement on city or non-border states, respectively. These are in themselves a highly diverse group and do not form a visible cluster of their own. All possible combinations of conditions *S* and *C* appear also among the city states alone, thus defying common notions of a cluster as a rather coherent group of cases. Rather, so it seems, do these groups assemble cases that are prone to be deviant or otherwise problematic for the overall models. This, however, is not true for all the cases in the respective subgroups. Consequently, limiting the models in that way might be an unnecessary restriction.

Table 6.6: Cluster diagnostics for QCA 1

cluster by ...	distance (original calibration)	distance (changed calibration)
city vs. area states	0.117	0.211
centrality	0.156	0.081
wealth	0.107	0.069

distance relates to 'From Between to Pooled'

Given the various configurations arriving at mostly the same (S^*C) but partly also at a more generous (*C*) solution, a discussion is due for which solution to opt. It is worth

bearing in mind that when comparing a more restricted statement with a more generous one (like S^*C as compared to C alone), the restricted one will never be wrong from a sufficiency point of view. Rather, the more restricted solution makes a more demanding statement of sufficiency. It thus has less coverage as it misses out on some cases that the more lenient solution would cover as well – with the risk of also introducing deviant cases. As a statement of sufficiency logically leaves room for the existence of other alternative solutions to the same outcome, a more strict statement is a safe choice to go with. In the present case, the truth table row representing S^*C involves roughly 10 cases with few ones disputed for their calibration. The latter cannot be said for the truth table row whose addition leads to solution C – this row is predominantly affected by calibration changes. Therefore, relying on it makes the solution less robust. Consequently, I stay with the more restricted solution term $S^*C \Rightarrow P$.

All considered, the analysis in this section supports the argument that when a topic is salient and administrative capacity is high, a complex decision-making process will be chosen. This is, however, not the only pathway to arrive at a complex decision-making process. There are cases, that did embark on a complex decision-making process without the topic being salient (*BY_road*, *MV_road*, *SN_road*), or without high capacity (*ST_road*), or with neither of both conditions being present (*ST_rail*). Thus, there is no claim made about the effect of the absence of any of the two conditions nor about numerous other conceivable conditions that might have pushed these not explained cases towards complex decision-making processes. Still, the form of decision-making process chosen by transport ministries is not arbitrary: Where salience and capacity are high, ministries opt for complex processes quite consistently. That there are only few cases that opted for complex processes in the absence of high capacity accentuates the enabling function of capacity for bureaucratic action (Scharpf 1997, p. 51; Wegrich and Hammerschmid 2017, p. 36). Importantly from a theoretical point of view, salience does not contradict opting for a complex decision-making process as would have to be expected when assuming increased political steering for salient topics (as e. g. in Eshbaugh-Soha 2006; Häge 2007; Bækgaard, Blom-Hansen et al. 2015). Rather, the QCA supports the notion that there might be good reasons to opt for complex decision-making processes for salient topics even though that might imply less political control over the output produced.

6.2.2 Ministerial output

The second step of the analysis searches for necessary and sufficient conditions for transport ministries producing transition-oriented outputs. Conditions taken in view are the policy preferences of the minister's party, the transition-orientation of sub-national ministerial behaviour towards federal expectations, and the choice of a complex decision-making process by the sub-national ministry. The reasoning behind this second step

brings together three theoretical notions: First, the default assumption from partisan theory is that different parties pursue different policies and this makes a difference for policy output (Hibbs Jr. 1977, 1992; Schmidt 1996; Sack and Töller 2018, p. 606). Second, in multi-level relations, interactions between the levels unfold under a ‘shadow of hierarchy’ (Scharpf 1997, pp. 197–200) as well as offering opportunities for blame shifting (Milio 2014, pp. 386, 388, 395; Heinkelmann-Wild and Zangl 2020), thus strategical behaviour by the lower level of decision-making. Third, the set-up of the decision-making process influences the degree of direct political control over the output produced. Where the information advantage of the bureaucracy versus the political level is increased, there is a potential that outputs will deviate from ministerial policy preferences (Epstein and O’Halloran 1994, pp. 701–702; Bendor et al. 2001, p. 240). Again, necessary conditions are studied first, followed by sufficient ones. The results are discussed in light of different robustness tests. A brief summary concludes this subsection.

The search for necessary conditions again does not bring any result, thus, neither of the conditions included is necessary for achieving a transition-oriented output. The condition that comes closest to being necessary is transition-oriented behaviour towards federal expectations (F). Figure 6.4 illustrates that it nevertheless is far from being truly necessary. The six cases in the upper left quadrant all share the outcome without having anticipated federal expectations for the road sector or having rejected federal expectations for the rail sector. Thus, it is to be expected, that condition F will show up prominently in combinations of conditions that are sufficient for the outcome, but there have to be additional pathways that do not involve the reactions to federal expectations.

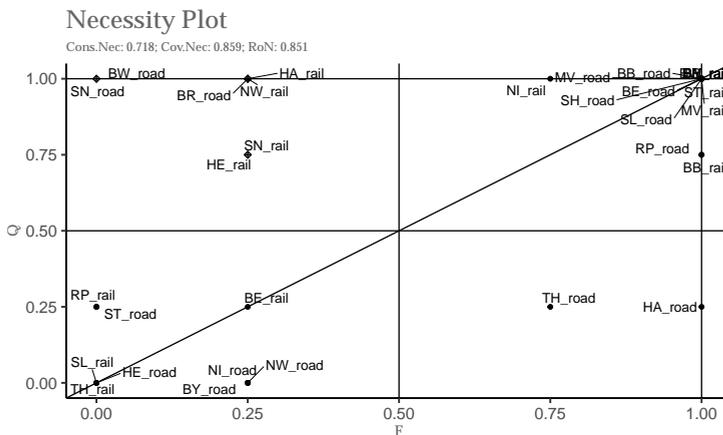


Figure 6.4: Necessity Plot for $F \Leftarrow Q$

In the search for sufficient conditions for arriving at a transition-oriented output, the truth table given in table 6.7 on the next page is constructed by listing all possible com-

binations of the conditions. Again, the rows are ordered by their level of internal consistency for having the outcome (column *incl*). The cut-off value is set at a consistency of 0.88, reflecting the sharp drop in consistency between the third and fourth truth table row. Including the next row would imply deeming $\sim E^*F^*P$ sufficient for the outcome, even though two in six cases defy such a statement (*HA_road* and *TH_road* did not produce a transition-oriented output). This contradicts the very logic of sufficiency, therefore such a statement is not made. This means that the first three rows are involved in the minimisation procedure.

Table 6.7: Truth table for the outcome ‘Transition-oriented ministerial output’

E	F	P	OUT	n	incl	PRI	cases
1	1	0	1	2	0.944	0.923	BE_road, MV_rail
1	1	1	1	3	0.900	0.895	BR_rail, BW_rail, BY_rail
0	1	1	1	5	0.885	0.870	BB_road, MV_road, NI_rail, RP_road, ST_rail
0	1	0	0	6	0.778	0.714	BB_rail, HA_road, SH_rail, SH_road, SL_road, TH_road
1	0	1	0	3	0.733	0.692	BW_road, NW_rail, NW_road
1	0	0	0	5	0.684	0.571	BE_rail, BR_road, HE_rail, RP_rail, SN_rail
0	0	1	0	4	0.421	0.312	BY_road, NI_road, SN_road, ST_road
0	0	0	0	4	0.400	0.250	HA_rail, HE_road, SL_rail, TH_rail

OUT = sufficient for having the outcome Q; n = number of cases; incl = consistency; PRI = prevalence of explaining the outcome over explaining the non-outcome

Minimising the three rows found to be sufficient for the outcome results in the solution term given in table 6.8.¹⁹ The solution term stipulates, that transition-oriented behaviour towards federal expectations is sufficient for arriving at a transition-oriented output in conjunction with either a transition-oriented election programme or a complex process. The table lists the ten cases covered by this solution. These are a little less than half of all cases that display the outcome as figure 6.5 on the facing page illustrates. Of all cases that do not have the outcome, none is incorrectly covered, thus none contradicting the statement that $E^*F + F^*P$ is sufficient for having the outcome.

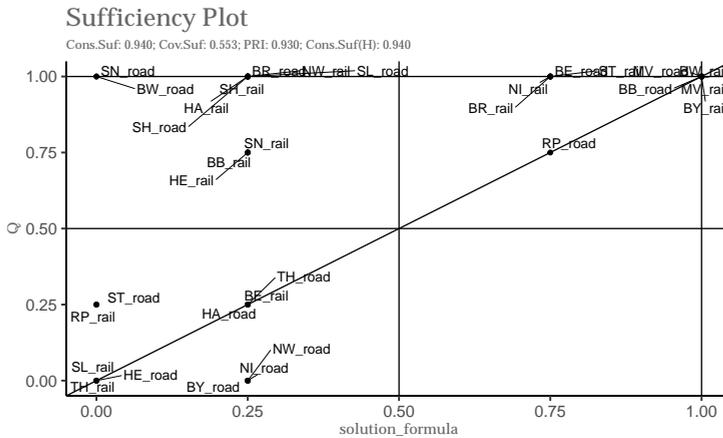
The analysis for the negated outcome identifies no problems. Again, there are no necessary conditions for the negated outcome identifiable. The simultaneous non-occurrence of all three conditions is found to be sufficient for *not* producing a transition-oriented output. Truth table and solution table are provided in tables E.3 and E.4 in appendix E. The solution term is not at odds with the one for the outcome in its presence and therefore unproblematic.

¹⁹ Again, an asterisk denotes a logical AND. A logical OR is denoted by a plus sign.

Table 6.8: Solution term and covered cases for QCA 2

E*F + F*P ⇒ Q					
	inclS	PRI	covS	covU	cases
E*F	0.938	0.926	0.353	0.141	BE_road, MV_rail; BR_rail, BW_rail, BY_rail
F*P	0.921	0.914	0.412	0.200	BB_road, MV_road, NI_rail, RP_road, ST_rail; BR_rail, BW_rail, BY_rail
solution	0.940	0.930	0.553		

inclS = consistency of the solution term; PRI = prevalence of explaining the outcome over explaining the non-outcome; covS = coverage of the solution term; covU = unique coverage of the solution term

Figure 6.5: Sufficiency plot for $E*F + F*P \Rightarrow Q$

The analysis in this subsection identified two pathways that are sufficient for arriving at a transition-oriented ministerial output. Both of these paths involve transition-oriented behaviour towards federal expectations, thus anticipating federal expectations for road projects and disregarding them for rail projects, the solution can thus be re-written as $F*(E + P)$. Being an INUS condition, F alone is not sufficient for a case to have the outcome of interest but only in conjunction with another condition, either a transition-oriented party programme (E) or a complex process (P).

The first conjunction captures cases where transport ministries align their reaction to higher-level demands with the policy preferences of their minister's party. For rail projects, this means that *Länder* ministries frankly ignore federal expectations or protest against them when the minister's party holds a transition-friendly position. Illustrative examples, that delineate the spectrum of such considerations, are Bremen ('The project proposals were solely driven by the infrastructure expansions that are necessary from the perspective of Bremen.', BR-01) and Baden-Württemberg ('The federal level is respons-

ible for [regional rail infrastructure as well] and cannot delegate that to the *Länder*. One has to demonstrate that to the federal level also by means of such project proposals.', BW-01). For road projects, Berlin as a city-state case is covered by this first solution term. City states are special cases insofar as the potential for large road constructions within cities is limited anyway. In the case of Berlin, direct requests by the federal level led to the inclusion of another project, thus running counter to the initial direction of the federal definition of the task. Reactions to federal expectations were voiced as answers to demands by oppositional enquiries (Abgeordnetenhaus Berlin 2012, p. 2). This first conjunction illustrates the most likely case of a minister having certain policy preferences and having those carried out (Laver and Shepsle 1990, p. 874) – while strategically behaving towards higher-level expectations.

The second conjunction brings together cases that made use of a complex decision-making process in defying (for rail) or anticipating (for road) federal expectations. These cases arrived at the outcome of interest regardless of the policy preferences formulated by the minister's party. The use of a certain complexity was justified in the respective *Länder* with a heightened ability to counter political and public wishes or in order to achieve specific goals. The non-appearance of condition *E* in this conjunction implies, that cases with this combination of conditions achieve the outcome regardless of the minister's policy position. This supports the argument that complex processes imply a more pronounced role for the bureaucracy in decision-making – as is also implied by the higher degree of discretion granted to bureaucrats when policies are understood as highly technical (Huber and Shipan 2013, p. 858; Veit et al. 2018, p. 424). The increased information disadvantage for the political actors consequently exacerbates delegation problems and makes the output less predictable (Epstein and O'Halloran 1994, pp. 701–702; Bendor et al. 2001, p. 240).

Examples from interviews and documents illustrate the interplay between federal expectations and complex processes. Federal expectations were an additional motivation for complex processes in decisions about road projects, as this required renouncing projects that had formerly been proposed for earlier BVWPs as e. g. in Brandenburg: 'There were many demands that projects should be included that had also been included previously, where we said: This does not fit our methodology, we do not see this as necessary.' (BB-02). Here, the clear-cut assessment framework allowed the bureaucracy to act as 'delegate-trustee[s]' (Majone 2001, p. 105) of federal expectations. For rail projects, complex processes would rather serve to illustrate the insufficiency of the federal perspective. This mainly relates to the fact that regional rail transport is mostly disregarded by the federal level in BVWP preparation. A paper by officials from Bremen and Niedersachsen challenges the federal position on the grounds of a systematic analysis carried out on the sub-national level: 'It would not be honest and from our perspective not acceptable to

factor the development of regional rail passenger traffic out of the task of the BVWP [...] Should the federal level [by way of calculation] minimise the urgent need for action in the hubs by disregarding the future demands for regional rail passenger services, this would be self-deceit for the federally owned rail network.' (own translation of: Eickmann and Krämer 2014, p. 4) In a different vein, the case of Bayern shows that a complex process involving many actors, but without a stringent concept, invites a broad front of project proposals and makes it attractive to disregard federal restrictions in order to satisfy demands for having certain projects proposed 'on the basis of public participation and, of course, due to the political pressure from regions that did not feel well-represented' (BY-03). Thus, room is opened up for blame-shifting between the levels (Milio 2014, pp. 386, 388, 395; Heinkelmann-Wild and Zangl 2020).

This result is robust against changes in calibrations. Changing dubious calibrations alone results in little change. Coverage decreases a bit as Berlin (for road) becomes an unexplained case. Else, the changes in calibration have no effect and the solution term stays the same as table 6.9 summarises.

Table 6.9: Robustness checks for QCA 2

Out.	Calibration	Thresh.	Solution	Cons.	Cov.	Deviant cases
Q	no change	0.88	$E^*F + F^*P$	0.940	0.553	none
Q	new dataset	0.88	$E^*F + F^*P$	0.938	0.529	none
Q	no change	0.85	$E^*F + F^*P$	0.940	0.553	none
Q	new dataset	0.85	F	0.884	0.718	HA_road
Q	no change	0.75	F	0.859	0.718	HA_road, TH_road
Q	new dataset	0.75	$F + E^*P$	0.873	0.812	NW_road, HA_road

Out. = outcome studied; Calibration = changes made in calibration of cases; Thresh. = consistency threshold for the truth table; Solution = minimised conservative solution; Cons. = consistency of the solution; Cov. = coverage of the solution; Deviant cases = cases covered by the solution but not having the outcome

Matters are more nuanced for changes in the consistency threshold. Lowering the threshold stepwise to include more and more truth table rows for minimisation leads to more and more encompassing solution terms. Figure 6.6 on the following page illustrates the increasing scope of these solutions for the original calibration as well as the robust core as the lowest common denominator between all the alternative solutions. The differently shaded areas in figure 6.6 signify combinations covered by the different solutions. The two areas in darker gray are equivalent to the initial solution. The light gray area is added when lowering the threshold – the previously covered areas E^*F and E^*P are now subsumed under F . Visibly, it covers area – and therefore cases – that were not covered by the initial solution. The almost black area is added for the term E^*P when

the threshold is lowered to 0.75. The dark gray area in the intersection between F and E constitutes the robust core.

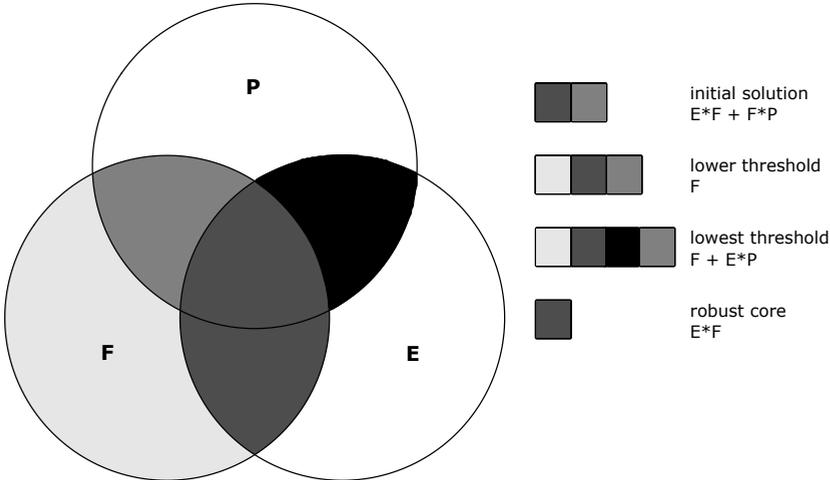


Figure 6.6: Venn diagram for the different solution terms (source: own illustration)

As table 6.9 on the previous page shows, the more lenient solutions are less robust to changes in calibrations. The number of deviant cases increases as well. I have argued above that this is not a good bargain for a statement of sufficiency – hence the higher threshold for the initial analysis. The more substantial changes, that occur when combining changed calibrations with a lower threshold, are effected by two cases: TH_{road} and BE_{road} . Under either model, Thüringen (for road) is and remains an irrelevant case in that it does not have the outcome, nor does it have any of the combinations of conditions deemed sufficient for the outcome. Thus, TH_{road} itself never is a problematic case – it does not have the outcome, nor is there any reason to expect otherwise. However, changing the calibration of F for TH_{road} , moves the case out of its initial truth table row, making that row – now without TH_{road} – more consistent. Additionally, BE_{road} moves into the respective row, further increasing its consistency, so that it passes a threshold of 0.85. The resulting more generous solution terms combine high coverage with quite acceptable consistency. Still, considering that this solution hinges on two specific calibration decisions for two cases, this alternative solution is fragile.

Even though in contrast to the first QCA, the robust core shown in table 6.10 on the facing page only covers one part of the initial solution, the overall assessment for the solution $E^*F + F^*P \Rightarrow Q$ is positive. The sufficiency of the term E^*F is undisputed, thus, being status-quo defying in both election programme and behaviour to federal expectations, is sufficient for producing a status-quo defying outcome. This is not surprising and rather represents a most likely case. Just as E^*F , F^*P is masked by the solution term

F when lowering the consistency threshold. As explained above, this is effected by a non-advisably low threshold or by two specific calibration changes. This test strengthens the argument for a more strict consistency threshold as under lower thresholds the result does indeed get shaky. Thus, the trade-off between consistency and coverage ought to be solved to the advantage of consistency in this case and the two statements of sufficiency from the initial solution are upheld.

The same logic of valuing consistency over coverage applies when considering the term E^*P that only appears in the solution under the extremely low consistency threshold of 0.75. Such a threshold leads to the inclusion of truth table row E^*-F^*P with three cases, two of which have the outcome, one does not. It defies the very notion of sufficiency to deem a term sufficient, when one of three cases does indeed illustrate the opposite. This opposing case, Nordrhein-Westfalen (for road), might have characteristics that diffuse the effect of a status-quo defying election programme in conjunction with a complex process. E. g. the complex process was partly mandated by law and thus no choice of the ministry. This could potentially make a difference for the effect – thus, there could be an additional condition that together with E^*P could be deemed sufficient for the outcome. Still, E^*P alone should not be regarded as sufficient.

Table 6.10: Robust core for QCA 2

Robust core					
Description			Parameters of fit		
Model	Boolean Expression		Consistency	Coverage	
$\{E, F, P\} \Rightarrow Q$	E^*F		0.938	0.529	
Comparison with initial solution					
% of cases with $Y > 0.5$			% of cases with $Y < 0.5$		
Robust typical	Ambiguous	Unexplained	Robust deviant	Ambiguous	Irrelevant
42.86	4.76	52.38	0.00	0.00	100.00

Robust typical and robust deviant cases are covered by both initial and test solution.

Ambiguous cases are covered by only one of initial or test solution.

Unexplained and irrelevant cases are covered neither by the initial nor the test solution.

Cluster diagnostics do not point to any problems for this analysis. All distances are extremely small and do not warrant further inspection of potential subgroups. The calculated distances are given in table 6.11.

Considering all of the above, it seems sensible to go with the initial solution $E^*F + F^*P \Rightarrow Q$. Other solutions rely on too generous consistency thresholds and are sensible to small calibration changes. The more restricted statement of the robust core (E^*F) describes a most likely case. That this most likely case also constitutes the robust core attests validity

Table 6.11: Cluster diagnostics for QCA 2

cluster by ...	distance (original calibration)	distance (changed calibration)
city vs. area states	E*F: 0.032; F*P: 0.034	E*F: 0.032; F*P: 0.034
centrality	E*F: 0.035; F*P: 0.037	E*F: 0.035; F*P: 0.037
wealth	E*F: 0.032; F*P: 0.016	E*F: 0.035; F*P: 0.016

distance relates to 'From Between to Pooled'

to the overall analytical set-up. The second part of the solution term F^*P only vanishes under analytical decisions that are in themselves not advisable. Therefore, retaining also the second part of the solution term seems warranted.

In consequence, the second QCA shows that a transition-oriented output is to be expected when the behaviour towards higher-level expectations is already transition-oriented and one of two additional conditions is fulfilled: Either the policy preferences of the minister's party are in line with a transport transition as well, or the ministerial decision-making process has been complex. In the latter case, the initial policy position is irrelevant. This emphasises the relevance of an awareness of higher-level expectations in multi-level systems (Scharpf 1997, pp. 197–200). It also demonstrates that ministerial policy preferences are important but no necessary determinants of a specific ministerial output (Andeweg 2014, p. 542). The relevance of the set-up of the decision-making process is confirmed. It is in the presence of a complex decision-making process that a transition-oriented output might be achieved even without a respective ministerial policy position – however, only when the behaviour towards higher-level expectations is sympathetic to such a course of action.

The next section will formally evaluate the solutions in light of the hypotheses.

6.3 Theory Evaluation

This chapter has started with formulating theoretically guided expectations about set relations and then has continued with an empirical analysis. This section now brings these two perspectives together and asks, what the empirical results tell us about the tenability of these theoretical expectations. I will therefore engage in formal set-theoretic theory evaluation, pointing out overlaps between theoretically expected set relations and empirical findings as well as discrepancies between them.

The logic behind theory evaluation in QCA is similar to the determination of the robust core and its comparison with the initial solutions. An intersection is calculated between the empirical solution and another – here theoretically expected – one (Ragin 1987, pp. 118–121). On this basis, it can be determined for how many cases the theoretical

expectations have been fitting and where the empirical findings diverge from those (C. Q. Schneider and Wagemann 2012, pp. 297–305; Thomann, van Engen et al. 2018, p. 590).

The Boolean expressions alone give but a first tentative impression. The analysis for outcome P conforms to the theoretical expectations. The solution $S^*C \Rightarrow P$ is exactly the one that was expected from a theoretical point of view. The analysis for outcome Q leads to partly unexpected results: While the term E^*F , describing the most likely cases, is found in the solution as expected beforehand, the term F^*P has no equivalent in the respective proposition. In exchange, the expected term E^*-P did not show up in the analysis.

From a covered-case perspective there are eight different constellations that theoretical expectations and empirical findings can take relative to each other when cases having the respective outcome and cases not having the outcome are regarded, respectively (C. Q. Schneider and Wagemann 2012, p. 301). Tables 6.12 on the next page and 6.13 on page 187 only list the variants of concordance and discordance between the two that are relevant in the respective analytical case. In the case of QCA 1 with the empirical solution term and theoretical expectation in line with each other, the four constellations actually reproduce the four quadrants of the sufficiency plot (see figure 6.3 on page 173). In the case of QCA 2 with an only partial overlap between theoretical expectation and empirical findings, there are more constellations that contain cases. I will point out the implications for both analyses in turn.

The empirically identified solution for the outcome of having a complex decision-making process equates the theoretical expectation. Two thirds of all cases that have this outcome are covered by the solution term S^*C , thus, they do have high administrative capacity and the topic of infrastructure policy was deemed salient. The remaining third of the cases that do have the outcome is not covered by the solution term, these cases could be described by the term $\sim S^+ \sim C$, thus not having high administrative capacity or the topic was not deemed salient (which is the logical negation to the solution term). There are two deviant cases (here termed ‘Inconsistent Most Likely’), that according to theory would have been expected to have the outcome and which are also covered by the solution but incorrectly so, as they do not have the outcome. One of these cases (*HE_road*) could be shown to be non-deviant with another plausible calibration. All remaining cases that do not have the outcome are consistent with theoretical expectations. All considered, the theoretical expectation finds support in the empirical analysis and makes a statement of sufficiency that is correct for most cases.

The empirically identified solution for the outcome of having a transition-oriented output only partly matches the theoretical expectation. Thus, there is unexplained variation left. Roughly a quarter of all cases that have the outcome are covered equally by the expectation as by the solution term. These are the cases that combine a transition-oriented

Table 6.12: Theory evaluation for QCA 1

Case type	Boolean Expression	% all cases	% cases Q >/< 0.5	Cases
Covered Most Likely (T*S and Y > 0.5) :	S*C	31.25	66.67	BB_road; BR_rail; BW_road; BW_rail; BY_rail; NI_rail; NI_road; NW_rail; NW_road; RP_road
Uncovered Least Likely (~T*~S and Y > 0.5) :	~S+~C	15.62	33.33	BY_road; MV_road; SN_road; ST_rail; ST_road
Inconsistent Most Likely (T*S and Y < 0.5) :	S*C	6.25	11.76	HA_road; HE_road
Consistent Least Likely (~T*~S and Y < 0.5) :	~S+~C	46.88	88.24	BB_rail; BE_rail; BE_road; BR_road; HA_rail; HE_rail; MV_rail; RP_rail; SH_rail; SH_road; SL_rail; SL_road; SN_rail; TH_rail; TH_road

T = theory; S = empirical solution
 >/< 0.5 relates to the respective direction given in the first column

election programme with transition-oriented behaviour towards federal expectations, expressed in the term E^*F . Roughly another quarter of the cases having the outcome are covered by the empirically identified solution but not by the expectation. These cases can be described by the term $P^*\sim E^*F$. In the analysis, these cases are covered by the term F^*P . In the comparison with the theoretical expectation it is even clearer, that these are cases that do not show a transition-oriented election programme, thus having the outcome regardless or even in spite of the ministerial programmatic position. Three more cases would have been expected to have the outcome according to the second expectation $E^*\sim P$, but are now not covered by the empirically identified solution. Thus, there are cases that conform to this expectation, but it did not crystallise as a general logical pattern. Finally, 38 % of the cases having the outcome are neither addressed by the expectation nor covered by the empirical solutions. This implies that there are other conditions at play that shape ministries' decision making in this context, which is in line with the idea of sufficient conditions – there are more pathways to arrive at a given outcome, still, this does not contradict the statements made. The cases that do not have the outcome are overwhelmingly those that are neither expected by theory to have the outcome, nor are they covered by the empirically derived solution. Just two cases (BE_{rail} and RP_{rail}) would have been, incorrectly in this case, expected to have the outcome according to

Table 6.13: Theory evaluation for QCA 2

Case type	Boolean Expression	% all cases	% cases Q >/< 0.5	Cases
Covered Most Likely (T*S and Y > 0.5) :	E*F	15.62	23.81	BE_road; BR_rail; BW_rail; BY_rail; MV_rail
Covered Least Likely (~T*S and Y > 0.5) :	P*~E*F	15.62	23.81	BB_road; MV_road; NI_rail; RP_road; ST_rail
Uncovered Most Likely (T*~S and Y > 0.5) :	E*~P*~F	9.38	14.29	BR_road; HE_rail; SN_rail
Uncovered Least Likely (~T*~S and Y > 0.5) :	~E*~F + ~E*~P + P*~F	25.00	38.10	BB_rail; BW_road; HA_rail; NW_rail; SH_rail; SH_road; SL_road; SN_road
Consistent Most Likely (T*~S and Y < 0.5) :	E*~P*~F	6.25	18.18	BE_rail; RP_rail
Consistent Least Likely (~T*~S and Y < 0.5) :	~E*~F + ~E*~P + P*~F	28.12	81.82	BY_road; HA_road; HE_road; NI_road; NW_road; SL_rail; ST_road; TH_rail; TH_road

T = theory; S = empirical solution

>/< 0.5 relates to the respective direction given in the first column

the theoretical expectation, but are not empirically covered. The theoretical expectations have thus been not overall correct but only for few cases would have made wrong predictions.

Overall, the most likely cases have been specified correctly as well as most of the least likely ones. The role of complex processes has however to be reconsidered in light of the empirical findings. The final section of this chapter will summarise the QCA findings in their respective context.

6.4 Results

This chapter on QCA has developed and presented two QCAs – each for a different outcome. The first one (QCA 1) has looked into conditions that are necessary or sufficient for a ministry to use a rather complex process to arrive at its decision. The second QCA (QCA 2) studied conditions that could be necessary or sufficient for a ministry to arrive at a transition-oriented decision. Thus, while QCA 1 dealt with determinants of

intra-ministerial procedural decisions, QCA 2 was interested in conditions explaining the output of intra-ministerial decision-making processes.

Based on the findings from qualitative content analysis and theoretical expectations, two groups of conditions have been distinguished that could be expected to lead to the respective outcome. For QCA 1 these were high administrative capacity and the salience of the topic under decision, i. e. transport infrastructure policy. For QCA 2, the complexity of decision-making processes – thus, the outcome of QCA 1 – as well as the transition-orientations of election programmes and of the behaviour towards federal expectations have been included in the analysis.

In none of the QCAs, necessary conditions could be identified. The analysis of necessity is the common first step in a QCA. For a condition to be deemed necessary, there ought to be no case with the outcome present that does not display the respective condition. As necessary conditions are seldom in general, their non-appearance in the present analysis is not particularly surprising. In each QCA, one condition could be identified that comes closer to being necessary than others, but even in these cases there always were cases present that had the outcome of interest without this respective condition.

In each QCA, a solution has been derived that summarises those combinations of conditions that are sufficient for having the outcome of interest. For QCA 1, the solution states that the joint occurrence of high administrative capacity and perceived salience of the topic under decision is sufficient for a ministry to choose a complex decision-making process. For QCA 2, two statements of sufficiency are made: The joint occurrence of transition-orientation in the election programme and in the behaviour towards federal expectations is sufficient for a ministry to arrive at a transition-oriented decision; the same holds for the joint occurrence of transition-oriented behaviour towards federal expectations and a complex decision-making process. These solutions are strictly descriptive of the data at hand. Consistency thresholds for the inclusion of truth table rows in the minimisation procedure have been chosen according to visible jumps between subsequent rows as well as with regard to the robustness of the ensuing solution.

The solutions have been tested for their robustness by varying calibration and consistency thresholds as well as applying cluster diagnostics. The solutions were robust to changes in calibrations alone. As decreases in consistency thresholds logically entail the inclusion of additional truth table rows, it comes as no surprise that these changes indeed led to changes in the solution terms. However, these more encompassing solutions came with problematic statements of sufficiency for individual truth table rows and regularly resulted in the introduction of deviant cases. The cluster diagnostics pointed to slight problems in QCA 1 and none in QCA 2. A subsequent re-analysis of QCA 1 taking into account cases' status as city states or as border states, respectively, illustrated that such a distinction indeed leads to a more encompassing solution statement without, however,

contradicting the initial solution. In conclusion of all robustness tests, it has been argued that the initially derived solutions ought to be upheld.

The results partly confirm and partly contradict the theoretical expectations. For QCA 1, the result perfectly matches the expected statement of sufficiency. As expected, salience is sufficient for the choice of a complex process in conjunction with high administrative capacity. In contradiction to a second theoretical expectation for QCA 1, high administrative capacity is not a necessary condition. For QCA 2, one of two theoretical expectations is empirically supported, namely that a transition-oriented election programme is sufficient for achieving a transition-oriented output in conjunction with transition-oriented behaviour towards federal expectations. The second theoretical expectation, that the election programme would only be relevant in the absence of a complex process could, however, not be supported. Having a complex decision-making process – instead of not having it – is an INUS condition and is sufficient in conjunction with transition-oriented behaviour towards federal expectations. Overall, the theoretical expectations were quite good in the sense that they would make few wrong predictions about cases having the outcome. Still, they did not correctly capture the role of complex processes in transition-oriented decision-making.

Based on the QCA, the following assessment for four of the five hypotheses²⁰ is put forward:

Hypothesis 1: *Ministerial policy output follows the policy preferences of the respective minister when those are in line with higher-level preferences in multi-level settings.* This is the most likely case for observing a transition-oriented ministerial output. This path is indeed identified by the QCA especially for rail-related decision-making processes. Here, it shows that a transition-oriented output ensues when the policy preferences of the minister's party are already transition-friendly and there is a willingness to oppose transition-adverse expectations from the federal level.

Hypothesis 3: *In complex decision-making processes, the policy output produced does not necessarily conform to the minister's policy preferences.* Besides the most likely cases of transition-oriented election programmes and behaviour to federal expectations, also ministries with transition-oriented behaviour paired with complex processes have produced transition-oriented outcomes. Consequently, even where the policy position of the respective minister's party is not transition-oriented, there is at least one path to still arrive at a transition-oriented output. Complex processes involving multiple actors and/or relying on a clearly specified decision-making framework can be seen as a means to counter potential protest arising against restricted road building, or as an additional argument to confront federal restrictiveness when it comes to accepting rail projects for the BVWP.

²⁰ As noted earlier, hypothesis 2 does not lend itself to scrutiny by means of QCA.

Hypothesis 4: *When the topic under decision is salient, a complex decision-making process is set up.* The analysis has shown, that in ministries where perceived salience of the topic meets high administrative capacity decision-making processes will be rather complex. Salience provides a motivation to actually engage in more resource- and time-consuming procedures of decision-making that are not in themselves mandated. As the content analysis would illustrate, ministries try to use complex processes to make their decisions better defensible against critique or protest from opposition parties, citizens, or the federal level.

Hypothesis 5: *High administrative capacity is a necessary prerequisite for a complex decision-making process.* Drawing on the insights from the analysis of necessity and from the robustness tests, capacity is an important enabler. Still, it is not as such a necessary condition.

Overall, the analysis allows the conclusion that the set-up of decision-making processes is both a result of the politico-administrative setting and a co-determinant of outcomes. Besides, two strongly expected aspects indeed materialised in the data: High capacity plays a critical role in shaping decision-making processes, and the joint occurrence of up-front transition-orientations in election programmes as well as in behaviour towards federal expectations also leads to a respective transition-oriented outcome. The retrieval of these highly likely constellations connects the analysis to existing knowledge and is therefore important to locate the findings in the wider context.

The next chapter will deepen the discussion of the empirical findings in light of each other as well as of the theoretical argument.

Part III

Results

7 Discussion

In the previous chapters, I presented a content analysis as well as a QCA in order to get closer to understanding intra-ministerial decision-making and to identify such determinants of ministerial policy outputs that reside within the intra-ministerial process. The sub-national proposals for the currently valid German Federal Transport Infrastructure Plan, the BVWP 2030, are the policy under scrutiny. This allows a comparative view into ministerial processes for the same policy task while keeping important environmental conditions – e. g. federal laws – constant across cases. This chapter will start with a brief review of the variation among the *Länder*. The following sections will summarise in what respects the analysis confirms earlier findings, discuss the five hypotheses, and point out potentials for generalisation.

On a descriptive plane, the material studied has outlined procedural variety among the *Länder*. The *Länder* have reached their intra-ministerial decisions in processes with varying complexity and different institutional involvement. Other ministries, commission

committees, the respective cabinet, parliamentary committees, or parliamentary plenaries – all where involved in at least one *Land's* decision-making process but were absent in many others. The reasons for these differences ranged from prior agreements between coalition partners on procedural modes to discretion of the respective minister.

The ministerial outputs are similarly diverse. While it comes as no surprise that large area states like Bayern or Niedersachsen propose more projects in absolute numbers than smaller ones like the Saarland, relations between size and project numbers are often not as clear-cut – the high number of road projects in Thüringen and the relatively high number of rail projects in Schleswig-Holstein are points in fact. The changes in numbers and financial volume compared to the previous BVWP 2003 also differ among the *Länder*: While the number of road projects is virtually the same as those confirmed in the BVWP 2003 for Hessen and Bayern, Brandenburg and Schleswig-Holstein proposed at maximum half as many road projects as they had placed in the previous BVWP. For the rail sector, almost all *Länder* proposed considerably more projects than were listed in the BVWP 2003 with increases ranging from 67% (from 3 to 5) in Thüringen to more than 700% in *Länder* that were present with just one project in the BVWP 2003 but proposed 8 to 17 projects for the BVWP 2030 (Brandenburg, Hamburg, Mecklenburg-Vorpommern, Sachsen-Anhalt). Changes in costs usually broadly mirror these changes in numbers, but might also reflect changes in the composition of proposed projects (motorways vs. highways; new constructions vs. electrification projects) or project characteristics (e. g. length and complexity).

This variety begs explanation. Certainly, an idiosyncratic explanation can be derived for every single *Land*, both for the road and for the rail sector – every interviewee could give a rationalised explanation for why the respective *Land* has put together the lists of proposals that it had. However, the search for theoretically-grounded and potentially generalisable patterns requires stepping beyond these individual narrations. Starting out from a theoretical framework based on actor-centred institutionalism, the analysis thus serves to assess five hypotheses about determinants of ministerial policy outputs:

1. *Ministerial policy output follows the policy preferences of the respective minister when those are in line with higher-level preferences in multi-level settings.*
2. *Ministerial policy output is influenced by the interaction with third-party actors.*
3. *In complex decision-making processes, the policy output produced does not necessarily conform to the minister's policy preferences.*
4. *When the topic under decision is salient, a complex decision-making process is set up.*
5. *High administrative capacity is a necessary prerequisite for a complex decision-making process.*

After pointing out common ground between my analysis and earlier studies, five sections will address one hypothesis each along with the respective theoretical considerations and

matching aspects in the literature. A final section will discuss the potential for generalisation.

7.1 Corroboration of earlier findings

The content analysis corroborates earlier findings about ministerial bureaucracy as well as about transport infrastructure planning in Germany. Examples of the former, that will not show up in the discussion of hypotheses below, are the predominance of the dialogue model of intra-ministerial decision-making and functional politicisation; examples from transport planning are the dominance of executive and experts as well as the treatment of international connections. I will discuss these in turn.

The dialogue model (Mayntz and Scharpf 1975, pp. 100–105; Scharpf 1997, p. 178) of ministerial decision-making by means of repeated communication between political and bureaucratic actors is frequently encountered in the interviews. This gets clear from reports that proposals wander back and forth between the political and the bureaucratic level, with both levels retaining a certain room for action. Drafts originate on the bureaucratic level, but that does not mean that the political decision will ultimately be along the lines favoured by the bureaucracy. The dialogue model covers the decision-making about procedural steps and criteria for the choice of projects, thus the criteria to differentiate between better or worse policy options (Scharpf 1997, p. 178), as well as the list of projects as such, thus the policy under decision (Scharpf 1997, p. 198).

Cooperation between the political top of the ministry and the bureaucratic working level is decisively eased by functional politicisation of the latter. In agreement with earlier findings (Mayntz and Derlien 1989; Hustedt and Salomonsen 2014; Veit et al. 2018), ministerial bureaucrats anticipate the political leanings of their superiors as well as what is feasible under the respective coalition agreement. Additionally, ministerial bureaucrats are frequently involved in consultations with third-party actors and in presenting and explaining decisions to the public, which is a second dimension of functional politicisation (Christiansen et al. 2016).

The analysis underscores the dominance of executive and technocratic actors as it has been described for previous BVWPs (Heuser and Reh 2007, p. 226, 2016, p. 258; C. Fischer 2018, pp. 260–261). Transport and infrastructure policy have long been rather technical fields where decisions are pre-structured by models and forecasts (Bandelow, Lindloff et al. 2016, pp. 171–172). The same can still be said for the preparation of the BVWP 2030. The proposal stage was almost entirely in the hands of the respective ministries. Especially in the road sector, the detailed data requests by the federal level highlighted that expert involvement was indispensable.

One more similarity between the BVWP 2030 and earlier ones arises from the treatment of international connections. As already pointed out by Dyrhaug (2013) for the rail sector, even international – and EU-sponsored – infrastructure projects are planned largely with national considerations in mind (Dyrhaug 2013, p. 115). In Germany, the systematic inclusion of international connections in strategic transport network planning is not possible under the BVWP framework. In a framework largely based on cost-benefit calculations, the lack of transnational data and the missing factoring in of a ‘European value added’ (van Exel et al. 2002, p. 310) are important impediments. Contrary to the general finding by Schwedes and Ruhrort (2016, p. 229), an increasing role of the European Union could not be identified in the context of project choice for the BVWP (compare C. Fischer 2018, pp. 254, 261).

All considered, the proposal stage of the process leading up to the BVWP 2030 can be seen as a typical example of intra-ministerial decision-making in German transport infrastructure planning. It showed traits observed already earlier in such processes. The following sections will discuss what the analysis implies for the hypotheses delineated from theory and literature.

7.2 Hypothesis 1 and relations between the levels

The hypothesis *Ministerial policy output follows the policy preferences of the respective minister when those are in line with higher-level preferences in multi-level settings* cannot be confirmed. Both content analysis and QCA suggest such an assessment. Both analyses insinuate that the hypothesis is untenable for the rail-related sector. For the road sector, the hypothesis is plausible but almost irrelevant among the cases studied.

In light of the content analysis, the hypothesis is plausible for the road sector but not for the rail sector. This differentiation mirrors the different competences, the *Länder* have for the two infrastructure modes. Therefore, I discuss them separately.

For the road sector, following perceived federal expectations makes sense insofar as the *Länder* manage the long-distance road network on behalf of the federal level. Thus, proposing many projects will cause work on the *Land* level later-on. Following a restrictive federal lead might thus serve to justify cutbacks in project lists – thus, turning the formerly observed blame-shifting argument around and using federal expectations as an argument not to propose projects in the first place, rather than having them deleted in the assessment process on the federal level. While this line of argument finds some support in the material, it is a seldom-trodden path that could explain, under which conditions a ministry proposed less road projects. On the other end of the spectrum, there is little evidence that expansion-oriented *Länder* would let the federal demand for reduction stop them from drafting extensive lists of proposals.

For the rail sector, the content analysis reveals several cases of project proposals deliberately made against the federal line. Such a behaviour necessarily increases the number of projects proposed and thus the transition-orientation as understood in this thesis. Ministerial policy output might here follow ministerial preferences even though federal preferences run counter to them. As the construction of long-distance rail connections is solely in the hands of the federal level, no future effort is involved for the *Länder*. Before a background of continued contestation of the extent of federal obligations for rail infrastructure beyond long-distance connections as well as the interpretation of what counts as long-distance, the *Länder* also used their ministerial output as a demonstration of interest in certain railway connections as well as a means of protest against the federal level. This can be understood as deliberate ‘*Gegen-Politik*’ (roughly translatable as ‘adverse politics’ Sack and Sarter 2018, p. 738) in order to signal discontent with a higher-level policy as well as ‘position-taking’ as a signal of willingness to regional constituencies and stakeholders in the face of federal policies that are not directly malleable by the *Länder* (Stecker 2015, p. 1319). The pattern following this line of argument is also reflected in the QCA.

In order to interpret the respective findings from the QCA, it has to be recalled that I recoded the condition relating to federal preferences to capture *transition-oriented behaviour towards federal expectations*. The federal preferences of getting less project proposals (and with realistic costs) were aligned with a transport transition for the road sector in the sense formulated by Schwedes and Ruhrort (2016), that a transport transition also required actions against road transport (Schwedes and Ruhrort 2016, p. 226) – in terms of infrastructure, that means less new road projects. For the rail sector, however, the federal preference of restrictive project proposals was not aligned with a transport transition. Consequently, the results of the QCA have to be interpreted separately for the road and for the rail sector.

The respective solution term in the QCA ($E^*F \Rightarrow Q$) describes election programme, federal expectations and ministerial output all being aligned towards a transport transition. This term covers four cases from the rail sector and only one case from the road sector. This means that in one fourth of all rail-related decision-making processes, transition-friendly ministerial preferences coincided with a willingness to outright ignore federal expectations, which resulted in a transition-oriented output. Thus, the output followed the ministerial policy preferences even though (or exactly because) they contradicted federal expectations. All in all, solely Berlin (for the road sector) can serve as an example of transition-friendly ministerial preferences which play out in light of transition-friendly federal expectations and result in a transition-friendly outcome. Thus, there is

a path that leads along the lines spelled out by the hypothesis, but it relies on just one case.²¹

Consequently, two conclusions can be drawn, one on the effect of ministerial policy preferences, one on the effect of higher-level expectations:

First, there is reason to believe that ministerial policy preferences keep playing an important role in determining ministerial policy outputs. Certainly, coalitional restraints are complied with, but, at least in the cases studied, the overall direction of the output – in contrast to individual projects – is usually not shaped by coalition agreements. I thus side with the assessment of ministers being constrained by coalition agreements, but still enjoying room for distinct leadership within their portfolios (Andeweg 2014, p. 542).

Second, in a multi-level system, the positioning towards higher-level expectations needs to be taken into account as decision-making unfolds in ‘the shadow of hierarchy’ (Scharpf 1997, pp. 197–200). This is, however, not to say that these expectations will be automatically followed on the lower levels – especially when lower-level units anticipate that their preferred solutions are ineligible under the framework established by the higher level anyway, they might even demonstratively deviate from higher-level expectations. Still, the existence of higher-level expectations and the hierarchical relationship between the levels demand a decision on how to behave in light of ‘the shadow of hierarchy’.

7.3 Hypothesis 2 and the ups and downs of consultations

The hypothesis *Ministerial policy output is influenced by the interaction with third-party actors* finds support in the content analysis. Interactions with third-party actors can be grouped as follows:

- formal participation schemes set up by the respective ministry (public participation, regional conferences)
- informal consultations held by the respective ministry with economic or administrative actors
- statements by organised interests
- local citizens’ initiatives

While the former two are top-down created opportunities for participation, the latter two are bottom-up constellations. Importantly, these two grand types are intertwined

²¹ The analysis for the negated outcome, thus no transition-oriented outcome, reveals that – if at all – only the joint absence of a transition-orientation in ministerial policy preferences as well as in the behaviour towards federal expectations plus the absence of a complex process are sufficient for producing no transition-oriented outcome ($\neg E^* \neg F^* \neg P \Rightarrow \neg Q$). Concerning road-sector decision-making, this solution term then solely covers the case of Hessen.

in practice. The local input created bottom-up might foremost reach local decision-makers on the city or county level, still, those are then addressed in a top-down manner by the ministry in informal or formal consultations – this avenue already has some tradition in the BVWP process (Reh 1988, pp. 291–292). In a similar vein, input first conceived of bottom-up on the local level might then be submitted via a formalised public-participation platform.

Problems arising in the context of third-party involvement are well-known from the literature. They include non-representative mobilisation (Vatter and Heidelberg 2013), lack of knowledge on the side of those invited to participate, as well as potentials for frustration when participation statements are ultimately not heeded (Fink and Ruffing 2019b, p. 235, 2019a, pp. 209–210). The latter was cited by interviewees as one of the reasons to refrain from public participation in the early planning stage, that the BVWP proposals present. At a moment, when there is still so much uncertainty involved as to whether a project could be realised, public participation was perceived by some interviewees as providing merely an illusion of influence to citizens. This blends over into the aspect of a lack of information. The BVWP process was at times badly understood by third-party actors, both citizens and administrative. Thus, meaningful participation was not possible where the resulting statements just did not fit the purpose of the BVWP.

Reasons for involving the public at large as well as more targeted audiences largely cluster around identifying local resistance to projects in the context of BVWP preparation as well as legitimacy enhancement in the sense of keeping everyone informed and giving citizens a voice in the process. Thus, involvement of third-party actors at that stage of decision-making fulfils an early-warning function as well as addressing input, throughput, and output legitimacy (Glaab 2019, p. 103). In some cases, garnering support for defending projects on the federal level was an additional consideration. The early-warning function as well as the information function have also been addressed critically as the consultations could only provide a one-time snapshot and not all citizens could be reached with the respective platforms. Notably however, in almost all cases where public participation or other forms of consultation took place, it was perceived that there was no way back behind this standard, some interviewees rather expressed that a more institutionalised or extended form would be desirable for future processes. This echoes assessments from the literature, that public participation had become a ‘mantra’ (Wesselink et al. 2011, p. 2688).

All in all, in the context of the BVWP proposals, the discussion of public participation as well as different forms of consultations is one about very early stages of the planning process. Thus, involving especially citizens at this stage reacts to demands of enabling participation as early-on in the process as possible. The downside includes a lack of understanding of the process on the side of the public as well as possible frustration when

projects are then cancelled on the federal level or get stuck somewhere on the decades-long road to completion.

The question to what extent early participation is beneficial and to what extent it is detrimental is beyond the scope of this discussion, still, some ideas can be assembled from the arguments presented. The benefits of early participation are likely dependent on the embedding in the wider decision-making process. What is more, expectation management has to be taken care of (Glaab 2019, p. 107): It needs to be clear to all involved whether the decision at stake is some kind of rough brainstorming or whether what is proposed has the realistic potential of becoming the main infrastructure undertakings for the next one or two decades. Often, interviewees voiced the impression that citizens tended to interpret BVWP proposals as binding. This phenomenon is not limited to the BVWP, but parallels considerations of the potential for frustration from the case of early-stage electricity grid planning (Fink and Ruffing 2019b, p. 235) as well as the more general assessment that ‘who activates citizen’s expertise, simultaneously raises expectations that proposals will be taken into account’ (own translation of Glaab 2019, p. 109). It therefore seems ill-advised to involve citizens in the brainstorming stages of decision-making for highly technical fields.

For the BVWP process – and beyond – this means that, if citizens expect to be consulted on specific and potentially binding decisions, there ought to be some effort made before consultations take place: The more ‘realistic’, to adopt the term used by the federal ministry of transport, proposals are, the less the risk of a negative assessment, the greater the potential for actual planning and construction and the less illusionary for the citizens taking part in public participation. It is in such cases where the early-warning function of public participation processes can be used best: When the decision is about projects that are seriously considered for proposal and later construction, early information about local resistance can help to address grievances and identify stakeholders to include in the further planning process – or even cancel the project altogether. Such commitment is less useful when project proposals involve large numbers of potential projects that might or might not eventually be built. In such cases, the apprehension that public participation might give a wrong impression of bindingness is certainly warranted.

Thus, involving third-party actors is best embedded in a complex decision-making process, that identifies feasible projects beforehand, and then set at the first stage, where specific projects can be outlined that are actually considered for construction.²² Consequently, there cannot be a general recommendation to undertake some form of con-

²² As one case from Mecklenburg-Vorpommern, who did exactly that, however shows, this might still not be the route to peace and quiet as contested projects will remain contested – even a formal referendum on a project proposal did not pacify the conflict between proponents and opponents (MV-02). Informed by the result of the referendum, the respective project, a bypass around the town of Waren, had not been proposed for the BVWP (Kubicek 2014, p. 105).

sultation in the context of BVWP preparation or not to do it, as such a recommendation would have to take into account the remaining decision-making process. Summing this up, third-party actor involvement should take place as early as possible, but not earlier.

7.4 Hypothesis 3 and the role for evidence

The hypothesis *In complex decision-making processes, the policy output produced does not necessarily conform to the minister's policy preferences* is supported by the analysis, however only if the complex process appears in conjunction with a transition-friendly behaviour towards federal expectations. Behaviour towards federal expectations might either be affirmative of or oppositional to these expectations – given the generally restrictive expectations of the federal level regarding the BVWP proposals, which of the two types of behaviour is transition-friendly depends on the transport-mode. For road projects, a complex process together with a willingness to act in line with federal expectations led to transition-oriented outputs. For rail projects, complex processes in conjunction with deliberate opposition to federal expectations led to transition-oriented outputs. In either case, a transition-oriented output is achieved regardless of the ministerial preferences.

It has been lamented that the reliance on transport engineers etc. insulates transport planning against political steering towards a transport transition (Heuser and Reh 2007, p. 226, 2016, p. 258). In light of the material at hand, this assessment has to be qualified to some extent: Reliance on transport engineers and experts as such is not a problem, far from it. The difference rather is in the planning frameworks in which this expertise is embedded. The result of the QCA implies that expert knowledge that is collected within a complex decision-making process has exactly the potential to contribute to a transport transition. The caveat here, however, is that this only holds when a prior decision was reached how to behave towards the expectations by the federal level and this decision affirmed a transport transition. Importantly though, this decision needed not be aligned with the minister's party's programme. A complex process alone does not predispose a decision-making process towards one output or the other – testifying to the earlier reproach that expertise has often been used strategically to increase budgets for more road infrastructure (Heuser and Reh 2007, p. 246).

The limited effect of policy preferences on outputs in the face of a complex decision-making process is highlighted further by the very much restricted influence of direct forms of politicisation. More direct forms of politicisation like active interference by ministers, coalitions, or members of parliament has indeed had noticeable impacts on outputs. However, these impacts have been limited to – mostly deleting – individual projects rather than changing the overall picture. This seems to be a constant since the early days of BVWP preparation (Reh 1988, pp. 280, 282, 290–291).

Consequently, while policy preferences remain an important determinant of ministerial outputs, the example of the *Länder* preparing the BVWP suggests that more attention ought to be paid to decision-making processes. Complex decision-making processes including diverse steps and stakeholders are able to incorporate evidence for a clearly defined target but without pre-determining solutions. This does not necessarily mean that the political level loses relevance, it rather emphasises a differentiation between decisions about policy goals – as a genuinely political task – and the more technical question of how to best achieve these goals – which, as one might argue, is where expert advice and evidence are best brought in.

7.5 Hypothesis 4 and strategic self-restraint

The hypothesis *When the topic under decision is salient, a complex decision-making process is set up* can be confirmed under the qualification that this only holds when capacity is high at the same time. Salience and capacity taken together form a path that is sufficient for the choice of a complex decision-making process. This is, of course, only relevant in situations where little prior rules exist on how to conduct the decision-making process. This might frequently be the case for early steps in decision-making before more formalised stages are entered – the preparation of BVWP proposals is an example of such early-stage processes.

Salience and high capacity emerge jointly as a sufficient path for choosing a complex decision-making process. Of the twelve cases showing this combination, ten have indeed chosen a complex decision-making process. Some caution is due as three out of four cases that show high capacity but no salience for the topic have opted for a complex decision-making process as well. A solution disregarding salience, however, proved to be very sensitive to slight changes in the specification of the analysis. What can be taken from this, are two things: First, capacity is certainly important, as I will discuss in the next section below. Second, given capacity, salience is very prevalent in cases with complex processes, thus, it does in no way hinder complex decision-making processes.

In departure from the literature on bureaucracy-politics interaction, I have argued that when topics are salient, complex decision-making processes are chosen to carve out the respective policies rather than simply pushing through policy-preferences as defined in election programmes. Now, it might not do justice to the literature to summarise it as assuming pushing-through behaviour for salient topics. Still, the argumentative tendency is clearly predisposed towards constellations where salient topics are handled by politicians in light of the respective policy preferences rather than letting bureaucratic decision-making take over (Gormley Jr. 1986; Bækgaard, Blom-Hansen et al. 2015). Salience is usually understood as putting more weight on some topics than on others. In

addition to this relative measure based on election programmes (Pappi and Seher 2009), I have added procedural aspects and wider considerations of importance of the topic when assessing salience. This might lessen comparability with the literature on the balance between political and bureaucratic decision-making. However, I argue that it more accurately captures salience as experienced by those involved in the decision-making process.

The salience-oriented arguments about political and bureaucratic decision-making are based on assumptions about information differences between the two groups. More technocratic, more complex processes increase the overall information load and increase the information disadvantage of politicians as compared to their bureaucracies. Hence, two expectations about decision-making processes for complex topics can be formulated: On the one hand, it might appear plausible to assume that politicians would like to avoid increased information disadvantages when the topic under discussion is a salient one; on the other hand, I have argued that an increased information disadvantage will rather be accepted in search of a solution that is at least broadly accepted by those having stakes in its implementation. This latter interpretation aligns well with the empirical material at hand and also mirrors the previously observed greater readiness to compromise in order to reach decisions on salient topics at all (G. Schneider et al. 2010, p. 96; Warntjen 2012, p. 169).

The connection between salience and choosing a complex process becomes most obvious where the strategic value of the latter is emphasised. This rationality behind opting for a complex process can be described as strategic self-restraint – not unlike arguments made in favour of trustee relationships that bind future actions to a pre-defined goal rather than to political control of details (Majone 2001, p. 104; Fink and Koch 2016, pp. 282–283). From the perspective of the ministerial officials engaged in these processes, this self-restraint could be used as an argument against demands from the public as well as from political actors. This applies first and foremost to the road-related decision-making processes, where the challenge consisted in restricting the amount of projects proposed. Reliance on pre-defined concepts for sorting out projects amounts to ‘deck-stacking’ (McCubbins, Noll et al. 1987, p. 255) insofar that the structure of the process was already geared to a certain policy goal without pre-determining the exact policy output. What is more, restricting project choice to explicitly defined criteria also served to keep the amount of projects at a manageable level for later implementation. In the rail sector, good arguments were collected in order to strengthen the case for rail expansion and to argue for more funding for regional rail from the federal level.

In a multi-level process like the one for the BVWP, the rationale behind designing complex decision-making processes in early stages does of course not automatically imply that this will be crowned by success. C. Fischer (2018) concludes that proposals based on

a clear conceptual framework indeed have good chances to succeed on the federal level and be included in the BVWP (C. Fischer 2018, pp. 255–256). Whether that then also means timely implementation is another question entirely.

Summing this section up, the link between salience and complexity is a rather positive one. It implies that numerous decision-making steps are added to pacify and integrate possible opponents when the task at hand is important to the respective minister. There is no evidence, that complexity would be shunned in order to secure an output strictly oriented towards the minister's party's policy stance on the respective issue.

7.6 Hypothesis 5 and the importance of capacity

The hypothesis *High administrative capacity is a necessary prerequisite for a complex decision-making process* is highly plausible in light of the analysis, but ultimately has to be narrowly refuted. The refutation hinges on the implications of the term 'necessity', i. e. that the respective output could never occur in the absence of the condition deemed necessary (Ragin 1987, p. 99). Such a strict pattern cannot be observed in the analysis presented. Hence, I conclude that high administrative capacity is indeed an important enabling factor but not strictly necessary in every single case.

Despite this refutation of necessity, administrative capacity is an important cornerstone in the design of decision-making processes. According to the QCA results, high administrative capacity and salience of the topic are jointly sufficient for the choice of a complex decision-making process. There are two observations that additionally strengthen the impression that high capacity plays an important role in determining the outlook of decision-making processes: First, three in four high-capacity cases that did not deem the topic salient have also opted for a complex decision-making process. Second, in the analysis of necessity it becomes obvious that ministries only very seldom set up complex decision-making processes in the absence of high administrative capacity. There are cases that made use of complex decision-making processes without high – but obviously with sufficient – administrative capacity, which means that high capacity is not strictly necessary, as there are other paths to complex processes that do not involve high capacity. However, for the majority of cases high administrative capacity appears to be an important ingredient when opting for complex decision-making processes.

In light of the content analysis, the prominent role of high capacity as already stated in the literature is plausible (e. g. Lodge and Wegrich 2014, pp. 10–15; Wegrich, Hamerschmid and Kostka 2017, p. 6). It is noticeable that among those *Länder* that did not opt for a complex decision-making process, capacity arguments were raised as a reason for using more basic process variants. Especially public participation was pointed out as capacity-consuming also by those who did engage in such additional procedural steps.

The relevance of high administrative capacity for participation processes bears important implications beyond the BVWP process. Public participation has become a norm for planning processes (Wesselink et al. 2011, p. 2688), which has also been strengthened by increased legal requirements for public consultation and participation. If this is to be more than window-dressing – which it might well be (Fink and Ruffing 2015, p. 268; Glaab 2019, p. 103) – adequate administrative capacity needs to accompany such demands. After all, someone has to set up the participation process and, what is more, someone has to analyse the incoming contributions and draw conclusions, and in the ideal case, someone also has to report back to those taking part in the process. Administrative capacity is therefore required for meaningful participation. This might mean increased staff levels but also financial means in order to buy services from specialised agencies or the like. That the latter variant is an option is exemplified by Mecklenburg-Vorpommern, where the responsible ministry conducted parts of the participatory process in the run-up to the BVWP together with an external partner (Kubicek 2014).

Experience with interactions between the levels illustrates that administrative capacity is still needed when external expertise is relied on. Some of the interviewees have hinted at capacity problems on the federal level which obstructed oversight for the assessment process and thereby could not ensure well-founded assessments of the projects. Thus, an overload of infrastructure projects for the federal level does not only hinder more central steering of transport policy (Schwedes and Ruhrort 2016, p. 213), in the same time, it might also restrict room for manoeuvre for the *Länder*, as a lack of assessment capacity also implies that the *Länder* cannot influence the decision-making process with arguments when these arguments are not taken into account. In the present case, this might have been a problem limited to few instances. Still, in terms of general mechanisms, it exacerbates the importance of high administrative capacity on all levels.

Enabling ministries as well as other administrative units to walk extra miles requires generous levels of administrative capacity. Such extra miles might be:

- engaging the public where authorities would not be obliged to do so
- engage the public in a meaningful way that goes beyond simply satisfying formal requirements
- to do all that in a timely manner

In 2020/21, the importance of administrative capacity for planning and implementation has been emphasised by journalists and opposition politicians alike (Schieritz 2021; Bündnis 90/Die Grünen Bundestagsfraktion 2020). This by and large mirrors earlier findings, that a lack of capacity decreases responsiveness (Drolc and Keiser 2020). Where ambitious forms of participation have been tried out, external participation experts – though possibly in their own interest – point out that higher levels of administrative capacity are necessary (Kubicek 2014, pp. 132–133). In discussions about to what extent ‘the

state' needs to be downsized, it has been called for heightened consideration of 'transaction costs' such as 'democratic control' (Behnke 2013, pp. 141–142). In the striving for effective public participation – as opposed to supposedly purely technical bureaucratic decision-making – these considerations seem to come back like a boomerang.

7.7 Potential for generalisation

In this section, I will discuss to what extent the results presented above are viable beyond the empirical cases they originate from. So far, this chapter has summarised the results of the analysis as regards the five hypotheses derived from theory and literature. Starting out from a content analysis and by then using QCA, one sufficient path towards complex processes and two paths to transition-oriented outputs could be identified. Before discussing the scope of generalisation beyond the cases under study, I present some brief considerations on the ability of these paths to capture the cases under study themselves. After that, I argue that my findings might plausibly be generalised to other policy fields, to other countries, as well as to position-formation in the run-up to international negotiations.

While the QCA allowed to identify patterns in the material at hand, it does not offer explanations for each single case. Clearly, there is unexplained variation left. About half of the cases with a transition-oriented output are not covered by any of the two paths identified, and one third of the cases with a complex decision-making process are not covered by the respective path. Given the parsimony of the models used, this is hardly surprising. There are clearly other ways to arrive at a transition-oriented output and other ways to arrive at a complex decision-making process. Thus, the paths identified by the QCA are not exclusive, but they are paths that have been found to be regularly at work in the cases studied. In consequence, the QCA does not so much enable to learn about the cases studied, but to learn from the cases studied.

The findings as well as the administrative set-up are not limited to the field of transport policy. Whenever sub-national units are tasked with delivering input for a higher-level endeavour, the combinations of reaction to higher-level expectations and sub-national policy preferences or process complexity, respectively, can be expected to play out. A possible scenario in the German context could be the further development of the National Sustainable Development Strategy, where federal and sub-national level have agreed on close cooperation (Die Bundesregierung 2021, p. 111). It would appear plausible that the input provided by the *Länder* could form along similar lines as identified for the BVWP proposals.

The analysis of complex processes is even less policy-specific and should be possible to witness in all kinds of ministries for many kinds of policies that ultimately depend

on the cooperation of other state levels or whose implementation hinges on local acceptance. The importance of administrative capacity for enabling public participation is very likely to hold across policy fields. At least for other instances of infrastructure planning, the result that salience plus capacity leads ministries to adopt complex decision-making processes should be broadly applicable as this relation does not pre-suppose any multi-level setting. Whether this is indeed limited to rather technical policy fields is a question worthy of future scrutiny.

Despite the strong role of federal elements present in the analysis, which is typical for Germany, the resulting insights are applicable in other – at times even non-federal – nation states. A fully federal system with more than one level of sovereignty is not necessary for the observed paths to play out. The question of generalisability touches two aspects: First, at least for the output-explaining part of the analysis, there needs to be a decision-making constellation that bears similarity to the one studied here, i. e. decentralised input for a centralised decision in the face of superior authority of the central decision-maker – the decentral unit does not necessarily have to be one with its own sovereignty but could be any sub-national unit endowed with its own administrative apparatus. Second, decision-preparation needs to take place within a fitting bureaucratic setting. While the former condition might in principle be found in all kinds of democratic systems at least from time to time, the latter warrants some discussion, which I will provide in the next paragraph.

I'll discuss the generalisability to different bureaucratic settings for the European administrative profiles distinguished by Kuhlmann and Wollmann (2013). Generalisations beyond the European context might be feasible where administrative profiles are similar to those outlined.

There are two administrative profiles where generalisability seems very likely. Together with Switzerland and Austria, Germany forms a country family with 'continental European federal' administrative profiles, which means a strong legalistic tradition with the host of administrative tasks being fulfilled in a decentralised manner (Kuhlmann and Wollmann 2013, pp. 26, 29). For this country family, it seems safe to assume a certain generalisability of the findings delineated above. Similarly, generalisability to the 'Scandinavian' country group should be possible, as these differ from the aforementioned group mostly in recruitment patterns and even more pronounced decentralisation (Kuhlmann and Wollmann 2013, pp. 26–27, 29).

For two other profiles, generalisability might be limited but possible. Generalisation to more centralised administrative systems with a strong legalistic tradition – thus, with a 'continental European Napoleonic' profile – seems possible for situations where independent regional input is sought, however probably not for the Southern European subtype due to heightened administrative party politicisation (Kuhlmann and Wollmann

2013, pp. 25–26, 29). Generalisation to Central and Southeastern European countries would only be possible insofar as these move towards one of the aforementioned profiles.

Countries that have an ‘Anglo-Saxon (and anglo-American) administrative tradition’ (Kuhlmann and Wollmann 2013, pp. 27–29) differ in important ways from the other types which might diminish potentials for generalisation, think e. g. of parliamentary accountability of the bureaucracy (Kuhlmann and Wollmann 2013, p. 28). On the other hand, especially considerations behind setting up complex decision-making processes are similarly plausible for this type of administrative profile, so that a comparative study might be worthwhile in this respect.

On the international level, constellations can be found that are similar to the administrative set-up discussed for the BVWP example and where the respective insights might therefore travel. The most striking difference to the national setting is the absence of a defined higher-level authority with sovereign decision-making power, rather the addressee of proposals tends to be an assembly bringing together diverse interests. What is more, proposals will often be the input for a negotiation process and not for a formal assessment. Still, I argue that considerations around complex processes can plausibly be generalised to the international level. In a more indirect fashion, also the insights about output production can be used to inform further research.

It has to be borne in mind that I specifically discuss preparatory decision-making here. Thus, I do not attempt to explain decision-making in international fora – the latter is much better explained by negotiation theorists (e. g. Moravcsik 1998; De Mesquita 2004; G. Schneider et al. 2010). I offer some thoughts on the bureaucratic decision-making about the respective regional or national positions that takes place beforehand. Thus, a link between the study of national bureaucracies and the study of position-formation for international fora (for position-formation in the EU Council see e. g. Bailer 2011) can be made.

An example where the findings presented here might be applicable is the EU council, whose meetings are heavily prepared by bureaucratic sub-structures (van Schendelen 1996; Häge 2007, 2012). In the run-up to Council negotiations, national positions have to be determined which then inform the preparations – and often effectively pre-decisions (van Schendelen 1996) – in the Council’s bureaucratic sub-structures. These sub-structures are, however, too different from the national setting to transplant the findings there. Still, they provide a frame of executive and expert dominance that makes it likely that the findings presented above can be used to explain national position formation taking place beforehand. A caveat results from the strengthened role of the European Parliament which has been found to politicise Council decisions (Häge 2011). This might

restrict the applicability of the findings produced for the context of intra-ministerial decision-making, as it reduces the dominance of executive and expert technocrats.

In preparing for Council negotiations, just like in a federal system, bureaucrats can already try to anticipate which positions might or might not have potential for success. Thus, four scenarios would be expected according to the output-related findings above: First, a country might enter the negotiations in the Council's committees with a position that is in line with domestic policy preferences and expected to have a certain potential for success in the negotiations. Domestic preferences have been found to be decisive criteria for position formation in the Council (Bailer 2011, p. 467; Hagemann et al. 2017, pp. 869–870). Bailer (2011) furthermore argues that Council negotiators usually do not opt for 'bold' positions that alienate their negotiation partners (Bailer 2011, p. 468). Second, the position might be in line with domestic policy preferences but explicitly contrast expected preferences of the majority as a means of protest. Especially in cases that are regarded as salient by them, EU member countries have been found to adopt positions that are bound to fail in the negotiations in order to signal their position to the other negotiators (Bailer 2011, p. 466). Furthermore, positions might reflect, third, accordance or, fourth, discordance with expected majority preferences on the basis of more complex decision-making processes – be it out of technical considerations, out of consultations with third parties, or out of reactions to public pressure.

Such complex decision-making processes are expected to be set up when the topic under decision is salient on the domestic level and the available administrative capacity is high. For the example of German preparations to negotiations in the EU Council of Ministers, it would thus be expected that the degree of voluntary coordination among the *Länder* as well as the federal level as observed by Hegele (2016) differs according to the salience of the topic to be decided. In consequence, generalising the finding from my analysis to negotiation-preparation for the international level leads to the expectation that there is more to national positions in international negotiations than mere policy preferences on the political level (this conclusion is also reached by Bailer 2011, p. 467). Rather is there reason to expect a mix of policy preferences, anticipations of majorities, and procedural components which for their part depend on salience and administrative capacity, to shape how positions are formed.

All in all, some very general lessons can be learned from the analysis of intra-ministerial decision-making about projects to propose for the BVWP. First, process characteristics are important as complex decision-making processes have the potential to shift outputs away from initial policy preferences. Second, capacity is a huge asset in the striving for more inclusive decision-making processes. Third, there is no automatism that lower-level decision-makers will try to anticipate higher-level expectations and place their proposals accordingly, lower-level proposals can just as well function as a form of protest against

known higher-level positions. Fourth, salience and complex decision-making processes are not antagonistic, complex decision-making processes might serve a strategic function to ensure that salient topics are addressed in an accepted – and therefore implementable – manner.

The concluding chapter of this thesis will summarise the entire research endeavour and spell out some implications.

8 Conclusion

This thesis started out asking what actually happens inside ministries and whether this makes any difference for the policy output produced. The literature on ministries is mostly concerned with interactions between ministries or between ministries and other actors (e. g. Andeweg 2000; Hegele and Behnke 2017) or focusses on the ministerial top-level only (e. g. Hustedt 2013; Ebinger, Lux et al. 2018). The working-level, thus the bureaucratic and formally non-political level, is often left out of consideration (there are of course exceptions: Mayntz and Scharpf 1975; J. G. Christensen and Opstrup 2018). As it is at this level that much preparatory policy-work is done and paths chosen that influence later stages of decision-making, the interactions unfolding between the ministerial working units and their political superiors as well as third actors is crucial for gaining a comprehensive understanding of the beginning of life of policies.

I conceptualise intra-ministerial decision-making along the lines established by actor-centred institutionalism (Scharpf 1997) and derive hypotheses from strands of literature

pertaining to different aspects of intra-ministerial decision-making (chapter 2). The hypotheses bring together arguments from literature on the partisan hypothesis (Hibbs Jr. 1992; Schmidt 1996) and coalitions (Laver and Shepsle 1990; Moury 2011; Andeweg 2014), on consultations (Wesselink et al. 2011; Tosun et al. 2015; Fink and Ruffing 2019b), on salience and bureaucratic-politics interaction (Eshbaugh-Soha 2006; Bækgaard, Blom-Hansen et al. 2015), as well as on administrative capacity (Ingraham and Donahue 2000; Addison 2009; Lodge and Wegrich 2014).

I have argued that the minister's party's policy preferences serve as the default expectation for ministerial output (Laver and Shepsle 1990, p. 874; Andeweg 2014, p. 542), but that this output might be moderated by taking into account expectations from higher levels of state (Scharpf 1997, pp. 197–200) as well as in the course of complex decision-making processes within the ministry. Such complex processes involving many steps and incorporating input from a variety of actors are set up when administrative capacity permits it (Scharpf 1997, p. 51; Wegrich and Hammerschmid 2017, p. 36) and the topic under decision is deemed salient by the respective minister. In tendency, this latter aspect goes against the literature on bureaucratic-politics interaction that rather insinuates that politicians prefer to keep a tight grip on salient topics (Eshbaugh-Soha 2006; Häge 2007; Bækgaard, Blom-Hansen et al. 2015). In contrast to that, I argue that in order to achieve a policy solution that is defensible vis-a-vis coalition partners as well as third-party actors a process involving as many actors as possible as well as relying on self-restraining frameworks might be a strategic choice in order to arrive at a feasible solution at all – even at the risk of deviating from the initial policy preferences held by the minister's party. By securing broad support for such a solution, it enables a ministry to tackle issues where solutions are otherwise very likely to be obstructed by other actors.

Empirically, I have used an example from transport infrastructure planning in Germany (chapter 4) in order to elucidate the determinants of intra-ministerial decision-making and output-production. I have studied the preparatory phase of the Federal Transport Infrastructure Plan (BVWP) which was mainly carried out on the sub-national level between 2011 and 2014. From the three transport modes treated in the BVWP, I have focussed on rail and road infrastructure. This resulted in 16 x 2 decision-making processes to be studied – one process for road infrastructure and one process for rail infrastructure in each of the 16 German *Länder*. Each of these processes resulted in a number of projects that were proposed to the federal level for inclusion in the BVWP. The totality of these projects could be more or less oriented towards a transport transition than those included in the previous BVWP dating from 2003. The ensuing study can thus also be read as one about circumstances that induce ministries to produce transition-oriented outputs. This means that, for the time being, I accept that a transport transition towards less car-centred mobility is desirable.

In order to grasp intra-ministerial processes in the cases chosen, I have combined expert interviews conducted with ministerial bureaucrats from sub-national German transport ministries with a wealth of documents from ministries, parliaments, and from some third parties (chapter 3). This material has first been subjected to a qualitative content analysis (Gläser and Laudel 2010; Mayring and Fenzl 2014; Schreier 2014) in order to structure the material and reduce the information to a few theoretically relevant categories (chapter 5). This part of the analysis illuminated the variance among the cases as well as leading to a first conclusion about the impact of interactions between ministerial bureaucrats and third-party actors. In a second analytical step, I have used QCA (Ragin 1987; C. Q. Schneider and Wagemann 2012; Oana, C. Q. Schneider and Thomann 2021) to identify patterns of output production as well as of procedural set-up (chapter 6). This meant conducting a formalised search for necessary and sufficient conditions for the two outcomes ‘complex decision-making process’ and ‘transition-oriented output’. As a result, this allowed an assessment of the remaining hypotheses. I have then drawn the insights from both analytical steps together in a discussion (chapter 7).

Concerning procedural set-up for intra-ministerial decision-making, I find that a combination of high administrative capacity and topic salience is prevalent among the cases opting for complex decision-making processes. Even though other high-capacity cases also tend to produce complex processes, this is not entirely consistent. However, when salience is added, a highly consistent picture emerges. This strengthens the argument that complex processes might be desirable for deciding salient topics rather than keeping the bureaucratic working-level out of it. It strongly suggests that salience and process complexity, which implies a heightened degree of bureaucratic influence, are not mutually exclusive. Rather, the findings from the content analysis suggest that the strategic value of a complex decision-making process should not be underrated. Such process designs might aim at convincing other actors and potentially pre-empting problems during implementation. The ability to set up complex processes is however regularly limited by the capacity available.

For the relation between process and ministerial output, I conclude that a complex decision-making process has the potential to drive ministerial outputs away from the policy preferences held by the minister’s party. However, a complex process alone is no predictor of any specific kind of output. Rather does it work in conjunction with pre-arranged goal definitions like a decision on how to behave towards expectations from higher state levels. It is worth noting, that this decision does not have to be aligned with the minister’s party’s policy position. Thus, a complex process might work either way and can also be a tool for a sub-national ministry to strategically signal discontent with decisions taken on a higher state level. Still, it remains true that the policy preferences held by the minister and her party will shape the policy output of a ministry in cases

where this aligns also with the specific decision on how to behave towards higher-level expectations.

These findings advance the theoretical discussion on ministerial decision-making, contribute to the discussion about a transport transition, and bear practical implications. I will discuss each of these below.

The theoretical discussion is enriched by a re-appraisal of the relationship between salience and the balance of bureaucratic-political interaction. So far, bureaucratic potential for deviation from political policy preferences has been regarded as a problem (e.g. Blom-Hansen et al. 2020). In consequence, it has been concluded that politicians decide on salient matters themselves, leaving only less important topics to their bureaucracies (Bækgaard, Blom-Hansen et al. 2015). This perspective on political-bureaucratic interaction ought to be adjusted in light of the findings presented here. Indeed, the analysis suggests that less direct political control can serve strategic purposes and should not automatically be regarded as problematic. This is in line with the call by Bach and Wegrich (2020) for a more positive stance on bureaucratic discretion (Bach and Wegrich 2020, p. 542). What is more, ministerial preferences might not even be that clearly accessible. The orientations underlying ministerial policy decisions are more complex than mere policy preferences held by parties. Behaviour towards multilevel expectations is one possible additional consideration. The sources of these additional considerations are, however, beyond the scope of this thesis.

In striving for a transport transition – as well as for other transitions – policies with new orientations will be needed. Such departures from the status quo can be challenging for the large organisations that ministries effectively are. The search for pathways towards transition-oriented ministerial outputs is therefore also one for the upsetting of current routines. The findings presented here might focus on bureaucratic decision-making, still they offer no escape from the fact that ‘sustainability transitions are inherently political’ (Meadowcroft 2011, p. 71). The insights developed here come into play only where a political desire for a sustainability transition is in principle existent – be it rooted in election programmes or other sources. The findings from the content analysis show that a deliberately complex decision-making process aiming at broad participation and transparent rules for decision-making can help a ministry to move away from the status quo in its decision-making. Such slowing down of the decision-making process in order to include more – and also minority – voices might also enhance legitimacy in the long run (Tosun et al. 2015, p. 166). It is too early to say whether this will hold through the implementation stage, but at least for the ministerial decision-making stage it seems promising.

Practical implications for the work within ministries concern the setting up of public participation processes. It has been noted by interviewees as well as in the literature that

public participation is generally expected and there will hardly be a way back behind participation frameworks once carried through (Fink and Ruffing 2015; Wesselink et al. 2011). Such an automatism would however bear potential for frustration both for those participating and for those receiving the respective statements (compare the example from electricity-grid planning as analysed by Fink and Ruffing 2019b). Voluntary participation frameworks can contribute meaningfully to decision-making if carried through with a clear idea of their purpose and taking in view the reality of life of those participating (compare also Fink and Ruffing 2019b, p. 234). Taking into account that carrying through public participation schemes causes a lot of administrative work, it seems even more important to carefully design these processes in order to arrive at results that are meaningful for both sides. Thus, it seems advisable to use public participation for questions where the public has the necessary knowledge and resources to contribute and where the input can be sensibly processed on the administrative side.

Despite all efforts made, this study suffers from a number of limitations. These concern the empirical scope, the restriction to the executive, conceptual work as well as methodological pitfalls. Even though it is for good reasons, the empirical scope of this thesis is limited. It studies a highly technical policy field within a very specific multi-level setting. Only future empirical tests can show whether this really is no hindrance to generalisation as I have argued in the discussion (chapter 7). The choice of a policy clearly in the hands of the executive had the advantage of a natural focus on the work within the ministries, however, in the same time it is a shortcoming as it does not allow much insight into interactions between ministries and parliaments that will without a doubt be relevant for many policy processes (on the relations between bureaucracy and parliament see e. g. Huber, Shipan and Pfahler 2001; Schnapp 2004b). In terms of concepts identified, the condition of 'behaviour towards higher-level expectations' is unsatisfying and raises new questions. It remains unclear what causes this behaviour. Disentangling the sources of ministerial ex-ante orientations would be desirable to clarify whether the source of a given agenda makes a difference – e. g. whether it is a personal agenda of the respective minister (Chabal 2003; Alexiadou 2016) or a bureaucratic one (Schnapp 2004a; Blom-Hansen et al. 2020). Methodologically, the biggest uncertainty resides in the interviews. Even though the information from the interviews was checked against further material wherever possible, it remains true that interviews requiring a retrospection across several years are a challenge and will most probably be tainted by the interviewees' knowledge of later stages of the process. Interviewer effects and a certain subjectivity inherent in qualitative analyses have been put under control as good as possible but will certainly have leaked in nevertheless. Last but not least, the choice of QCA as an analytical strategy shapes what kind of relationships can be found at all – as QCA focusses on sufficient and necessary combinations of conditions, the effect of individual variables can logically

not be discerned. By using a two-step approach of content analysis and QCA, potentially relevant variables could be identified in the first step that might inspire further scrutiny in future research potentially relying on other approaches than QCA.

Further research will hopefully broaden as well as deepen the questions raised in this thesis. Broadening the empirical scope both in the direction of other policy fields and with regard to other geographical areas would help to ascertain the generalisability of the findings produced here. Deepening the empirical work could include more in-depth studying of intra-ministerial decision-making by acquiring material that allows process tracing. This would complement the work done here by more precisely carving out the causal mechanisms at work. Scrutiny is particularly needed to identify sources and patterns of *ex-ante* positions held in ministries – that involves but is not confined to decisions on how to behave towards expectations from hierarchically higher levels. Furthermore, the interaction of lower levels of ministries with the respective parliament has to be scrutinised as well in order to arrive at a more comprehensive understanding of intra-ministerial decision-making.

Despite its unavoidable shortcomings this thesis has shed light on the processes and outputs of intra-ministerial decision-making and thus provided a comparative view into the very early stages of policy-making. It has contributed to the theoretical discussion on who gets to decide about salient policies. It has broadened the understanding of how bureaucrats and politicians interact by incorporating the very early stages of decision-making within ministries. By studying the role of process complexity for decision-making it has identified a possible avenue for the introduction of new policy orientations in ministries. As a side-effect, it updated as well as broadened the available knowledge on the German Federal Transport Infrastructure Plan. More attention to process design promises to help getting infrastructure planning on track towards transition-oriented policies, while a lack of administrative capacity is very likely to push such projects off the rails.

Appendix

A List of documents

All election manifestos and coalition agreements have been retrieved from the database polidoc.net (Benoit et al. 2009; Gross and Debus 2018). Other documents are from institutional websites, parliamentary databases or have been made available to me as hard-copy or via e-mail.

A.1 Baden-Württemberg

- BÜNDNIS 90/DIE GRÜNEN BW (2011). *Das neue Programm für Baden-Württemberg. Landtagswahlprogramm.*
- Grüne/SPD Baden-Württemberg (2011). *Der Wechsel beginnt. Koalitionsvertrag zwischen BÜNDNIS 90/DIE GRÜNEN und der SPD Baden-Württemberg. Baden-Württemberg 2011 - 2016.*

- Landtag von Baden-Württemberg (2013d). *Antrag der Abg. Nicole Razavi u. a. CDU und Stellungnahme des Ministeriums für Verkehr und Infrastruktur – Parlamentarische Beteiligung bei der Aufstellung des Bundesverkehrswegeplans*. Drucksache 15/3509.
- Landtag von Baden-Württemberg (2013b). *Antrag der Abg. Nicole Razavi u. a. CDU und Stellungnahme des Ministeriums für Verkehr und Infrastruktur – Bürgerbeteiligung bei der Aufstellung des Bundesverkehrswegeplans Straße*. Drucksache 15/3510.
- Landtag von Baden-Württemberg (2013c). *Antrag der Abg. Nicole Razavi u. a. CDU und Stellungnahme des Ministeriums für Verkehr und Infrastruktur – Konzeption Bundesverkehrswegeplan Straße*. Drucksache 15/3522.
- Landtag von Baden-Württemberg (2013a). 77. Sitzung, TOP 3: *Bundesverkehrswegeplan – Anmeldungen aus Baden-Württemberg*. PlPr 15/77.
- Ministerium für Verkehr und Infrastruktur Baden-Württemberg (2013b). *Ergebnis der Anhörung zur Anmelde-Liste des Landes Baden-Württemberg für den Bundesverkehrswegeplan 2015 - Straßenbauvorhaben* -. https://vm.baden-wuerttemberg.de/fileadmin/redaktion/m-mvi/intern/Dateien/PDF/BVWP/Anhoerung_BVWP_2015_Ergebnis_01.pdf (visited on 16/07/2020).
- Ministerium für Verkehr und Infrastruktur Baden-Württemberg (2013c). *Priorisierung im Rahmen der BVWP Anmeldung – Verfahrensweise und Ergebnisdarstellung*. https://vm.baden-wuerttemberg.de/fileadmin/redaktion/m-mvi/intern/Dateien/PDF/BVWP/Priorisierung_Verfahrensweise-Ergebnis-Einzelbewertung.pdf (visited on 16/07/2020).
- Ministerium für Verkehr und Infrastruktur Baden-Württemberg (2013a). *Aufstellung BVWP 2015 Listen Priorisierungsergebnisse*. https://vm.baden-wuerttemberg.de/fileadmin/redaktion/m-mvi/intern/Dateien/PDF/BVWP/BVWP_Priorisierungsliste.pdf (visited on 16/07/2020).
- Ministerium für Verkehr Baden-Württemberg (2018). *Bundesfernstraßen und Bedarfsplan*. <https://vm.baden-wuerttemberg.de/de/politik-zukunft/bundesverkehrswegenplan/bundesfernstrasse-bvwp/> (visited on 06/08/2018).

A.2 Bayern

- CSU (2008). *Für ein starkes Bayern. Regierungsprogramm 2008 bis 2013*.
- FDP (2008). *Liberales Programm zur Landtagswahl 2008*.
- CSU/FDP Bayern (2008). *Koalitionsvereinbarung 2008 bis 2013 zwischen CSU und FDP für die 16. Wahlperiode des Bayerischen Landtags*.
- Bayerisches Staatsministerium für Wirtschaft, Infrastruktur, Verkehr und Technologie (2012). *Öffentlichkeitsbeteiligung im Rahmen der Anmeldungen des Freistaats für den Bundesverkehrswegeplan (BVWP) 2015 – Schienenwege und Wasserstraßen*. http://www.stm.bayern.de/Dateien/Dateien/BVWP_2015/BVWP_2015_01.pdf (visited on 16/07/2020).

s://www.lautwirtds.com/app/download/5792010237/%C3%96ffentlichkeitsbeteiligung_Bundesverkehrswegeplan_2015.pdf (visited on 14/07/2020).

- Bayerischer Landtag (2012b). *Schriftliche Anfrage des Abgeordneten Thomas Mütze, BÜNDNIS 90/DIE GRÜNEN: Dringlichkeit und Realisierungschancen der BVWP-Projekte in Bayern. Drucksache 16/10638.*
- Bayerischer Landtag (2012a). *Schriftliche Anfrage des Abgeordneten Bernhard Roos, SPD: Aufnahme der „Nordtangente“ im Landkreis Passau in den Bundesverkehrswegeplan. Drucksache 16/10863.*
- Bayerische Staatskanzlei (2013). *Pressemitteilung Nr. 95 vom 12. März 2013. Bericht aus der Kabinettsitzung.*
- Bayerisches Staatsministerium des Innern (2013). *Bundesverkehrswegeplan 2015 (BVWP 2015) Bericht über die Öffentlichkeitsbeteiligung im Rahmen der Projektanmeldung für den Bereich der Bundesfernstraßen in Bayern.* <https://www.baysis.bayern.de/web/download.ashx?i=1e5aac66-4096-4bad-9d76-d69466f2d91f&usg=AOvVaw1RiiWrLQKIh8yN0uSUV4YM> (visited on 14/07/2020).
- Bayerischer Landtag (2013). *Schriftliche Anfrage der Abgeordneten Annette Karl, SPD: B14-Ortsumgehung Sulzbach-Rosenberg. Drucksache 16/16522.*
- Bayerischer Landtag (2014). *Schriftliche Anfrage des Abgeordneten Markus Ganserer, BÜNDNIS 90/DIE GRÜNEN: B131n. Drucksache 17/3883.*

A.3 Berlin

- Berliner SPD (2011). *BERLINprogramm 2011–2016.*
- SPD/CDU Berlin (2011). *Berliner Perspektiven für starke Wirtschaft, gute Arbeit und sozialen Zusammenhalt. Koalitionsvereinbarung zwischen der Sozialdemokratischen Partei Deutschlands Landesverband Berlin und der Christlich Demokratischen Union Landesverband Berlin. Vorlage für die Beratung des Landesparteitages der SPD am 21. November 2011.*
- Abgeordnetenhaus Berlin (2012). *Kleine Anfrage der Abgeordneten Harald Moritz und Stefan Gelbhaar (GRÜNE) und Antwort – Anmeldungen Berlins für den Bundesverkehrswegeplan 2015. Drucksache 17/10634.*
- Abgeordnetenhaus Berlin (2014). *Schriftliche Anfrage des Abgeordneten Harald Moritz (GRÜNE) und Antwort – Berliner Straßenbauprojekte für den Bundesverkehrswegeplan 2015. Drucksache 17/14326.*
- Senatsverwaltung für Stadtentwicklung (2011). *Stadtentwicklungsplan Verkehr Berlin.*

A.4 Brandenburg

- SPD Brandenburg (2009). *Regierungsprogramm 2009-2014.*

- SPD/Linke Brandenburg (2009). *Vereinbarung zur Zusammenarbeit in einer Regierungskoalition für die 5. Wahlperiode des Brandenburger Landtages 2009 bis 2014*, Sozialdemokratische Partei Deutschlands Landesverband Brandenburg, Die Linke Landesverband Brandenburg.
- Landtag Brandenburg (2012). *Antwort der Landesregierung auf die Kleine Anfrage 2571 des Abgeordneten Michael Jungclaus, Fraktion BÜNDNIS 90/DIE GRÜNEN – Bundesverkehrswegeplan (BVWP) 2015. Drucksache 5/6672*.
- Ministerium für Infrastruktur und Landwirtschaft (2012a). *Überprüfung des Bedarfsplans für die Bundesfernstraßen 2004. Maßnahmenentwicklung*. Presentation slides. <https://mil.brandenburg.de/sixcms/detail.php/587702> (visited on 14/07/2020).
- Ministerium für Infrastruktur und Landwirtschaft (2012b). *Überprüfung des Bundesverkehrswegeplans – Teil Bundesfernstraßen*. https://mil.brandenburg.de/media_fast/4055/Er%C3%B6ffnung%20Beteiligung_Vortrag%20Minister.pdf (visited on 14/06/2019).
- Ingenieurgruppe für Verkehrswesen und Verfahrensentwicklung IVV GmbH (2012). *Schwachstellenanalyse für das Bundesstraßennetz des Landes Brandenburg*. <https://mil.brandenburg.de/cms/detail.php/bb1.c.316562.de?highlight=Schwachstellenanalyse> (visited on 14/07/2020).
- Ministerium für Infrastruktur und Landwirtschaft (2013). *Fortschreibung des Bundesverkehrswegeplans – Teil Bundesfernstraßen. Auswertung Beteiligungsverfahren*. Presentation slides. https://mil.brandenburg.de/media_fast/4055/Vortrag210513_Stand1705.pdf (visited on 14/06/2019).
- Landtag Brandenburg (2013a). *Ausschuss für Infrastruktur und Landwirtschaft. Protokoll - Teil 2. P-AIL 5/50-2. TOP 4: Bericht des Ministeriums für Infrastruktur und Landwirtschaft zum aktuellen Stand der Programmanmeldung für den Bundesverkehrswegeplan 2015 für die Bereiche Schiene und Wasserstraße*. (Visited on 09/04/2021).
- Landtag Brandenburg (2013b). *Ausschuss für Infrastruktur und Landwirtschaft. Protokoll - Teil 2. P-AIL 5/52-2. TOP 6: Bericht des Ministeriums für Infrastruktur und Landwirtschaft zum aktuellen Stand der Programmanmeldung für den Bundesverkehrswegeplan 2015 für den Bereich der Bundesfernstraßen*. (Visited on 09/04/2021).
- Ministerium für Infrastruktur und Landesplanung, Ref. 45. (2013). *Fortschreibung Bedarfsplan Bundesfernstraßen 2015. Aktivitäten- und Zeitplan*. Excel file. Not published, received via e-mail.
- Ministerium für Infrastruktur und Landesplanung (2016). *Bundesverkehrswegeplan 2015 - Anmeldeverfahren*. <https://mil.brandenburg.de/sixcms/detail.php/bb1.c.316040.de> (visited on 14/06/2019).

A.5 Bremen

- Bündnis90/DieGrünen Bremen (2011). *Wir bleiben dran. Wahlprogramm Bremen 2011.*
- SPD/Grüne Bremen (2011). *Vereinbarung zur Zusammenarbeit in einer Regierungskoalition für die 18. Wahlperiode der Bremischen Bürgerschaft 2011 – 2015. Sozialdemokratische Partei Deutschlands Landesorganisation Bremen, Bündnis 90/ DIE GRÜNEN Landesverband Bremen.*
- Senator für Umwelt, Bau und Verkehr (2012). *Bericht der Verwaltung für die Sitzung der Deputation für Umwelt, Bau, Verkehr, Stadtentwicklung und Energie (L) am 19.07.2012: Anmeldung von für Bremen wichtigen Verkehrsprojekten zum Bundesverkehrswegeplan 2015.* https://www.bauumwelt.bremen.de/sixcms/media.php/13/18_144_L_Verkehrsprojekte%2BBundesverkehrswegeplan_Endf.pdf (visited on 19/06/2020).
- Hanseatic Transport Consultancy and RMCon (2013). *Kapazitive Leistungsfähigkeit des Eisenbahnnetzes im Großraum Bremen. Deputation der Bremischen Bürgerschaft – Ausschuss für Angelegenheiten der Häfen im Lande Bremen. Vorstellung der Ergebnisse der Untersuchung.* <https://www.transparenz.bremen.de/sixcms/detail.php?gsid=bremen142.c.17915.de> (visited on 19/06/2020).
- Senator für Umwelt, Bau und Verkehr (2013a). *Bericht der Verwaltung für die Sitzung der Deputation für Umwelt, Bau, Verkehr, Stadtentwicklung und Energie (L) am 30.05.2013: Anmeldungen des Landes Bremen zum Bundesverkehrswegeplan 2015.* https://www.bauumwelt.bremen.de/sixcms/media.php/13/2013_BdV_Bundesverkehrswegeplan_Endf.pdf (visited on 19/06/2020).
- Senator für Umwelt, Bau und Verkehr (2013b). *Ergebnisprotokoll der 22. Sitzung der staatlichen Deputation für Umwelt, Bau, Verkehr, Stadtentwicklung und Energie vom 30.05.2013.* https://www.bauumwelt.bremen.de/sixcms/media.php/13/18_22%20PROTOKOLL%20%28L%29%2030%2005%202013_mit%20Anlage.pdf (visited on 19/06/2020).

A.6 Hamburg

- SPD Hamburg (2011). *Unser Hamburg: stark und solidarisch. SPD-Regierungsprogramm für Hamburg.*
- Hamburg Port Authority and Freie und Hansestadt Hamburg – Behörde für Wirtschaft, Verkehr und Innovation (2012). *Hamburg hält Kurs – Der Hafenentwicklungsplan bis 2025.* <https://www.hafen-hamburg.de/downloads/media/dokumente/hep.pdf> (visited on 19/06/2020).

- Bürgerschaft der Freien und Hansestadt Hamburg (2012a). *Schriftliche Kleine Anfrage des Abgeordneten Dr. Till Steffen (GAL) vom 20.06.12 und Antwort des Senats. Betr.: Hamburger Projekte im Bundesverkehrswegeplan 2015. Drucksache 20/4535.*
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B Interviews

B.1 Number, mode, and recording type

Interviews have been conducted from December 2018 through December 2019. The interviewees in the *Land* ministries for transport or infrastructure have been heads or clerks of sections responsible for rail infrastructure, long-distance road construction or transport policy/basic issues of transportation who have been in office either at the time of the interview or in 2013. The same holds for interviewees in subordinate bodies. Table B.1 on the following page gives the numbers of people talked to in full interviews and adds instances of brief additional exchanges in parentheses. Interviews involved up to three interviewees at a time. 21 interview appointments were completed face-to-face, two on the telephone, two in a combination of face-to-face and telephone communication, and one interview was replaced by an e-mail response to pre-formulated questions.

Table B.1: Number and mode of expert interviews

Interviewees	Mode	Documentation	Persons
<i>Land</i> ministry	face-to-face	audio	25
<i>Land</i> ministry	face-to-face	written	4
<i>Land</i> ministry	telephone	audio	1
<i>Land</i> ministry	telephone	written	1
<i>Land</i> ministry	tel. + face-to-face	audio	2
<i>Land</i> ministry	e-mail	written	1
Subordinate body	face-to-face	audio	4
Subordinate body	e-mail	written	(2)

B.2 Topic guide

The following topic guide in German language has been used for all interviews conducted in 2019 with slight *Land*-specific changes. The topic guide used for the first three interviews in 2018 had the questions in a slightly different order.

Vorbereitung der Anmeldungen zum BVWP

Begrüßung und Einführung

Mein Name ist Jenny Rademann. Ich bin Doktorandin an der Universität Göttingen und wissenschaftliche Mitarbeiterin an der Professur für das politische System der Bundesrepublik Deutschland. In meiner Promotion befaße ich mich mit intra-ministerialen Entscheidungsprozessen in der Vorbereitung des BVWP 2030. Das Thema, über das ich gern mit Ihnen sprechen möchte, ist der Ablauf des Erarbeitungsprozesses der Anmeldungen zum BVWP 2030. Das Interview wird ca. 90 Minuten dauern. Ich würde das Gespräch gern aufnehmen, damit ich mich während des Gesprächs ganz auf Ihre Antworten konzentrieren kann. In meiner Arbeit werde ich alle Informationen aus diesem Gespräch nur in anonymisierter Form verwenden, das heißt, es gibt keine Zuordnung von direkten oder indirekten Zitaten zu Ihrer Person. Ist das in Ordnung?

Einleitung

Sie sind (Funktion) im (Organisationseinheit) – ist das richtig? Welche Funktion hatten Sie inne, als die Anmeldungen zum BVWP erarbeitet wurden?
Inwiefern waren Sie in die Erarbeitung der Anmeldungen zum BVWP involviert?

Erarbeitungsprozess BVWP 2030

Es geht mir explizit um die Erarbeitung der Anmeldungen (nicht um den BVWP als Ganzes). Bitte schildern Sie mir einmal, wie dieser Erarbeitungsprozess in (Bundesland) aus Ihrer Sicht ablief.

- Wann begann dieser Prozess?
- War von Anfang an klar, wie der Prozess ablaufen würde oder gab es da Unklarheiten? Können Sie mir kurz erklären, wer in diesem Kontext wofür zuständig gewesen ist?
(Organigramm vorlegen)
- Wann wurde zum ersten Mal über anzumeldende Projekte nachgedacht?
- Von wem ging das aus?
- Welche Abstimmungen gab es bereits im Vorfeld? (Bund, DB Netz, ...)

Was war entscheidend dafür, ob ein Projekt angemeldet wurde oder nicht?

- Wie wichtig ist der BVWP für (Bundesland)?
- Von welchen Erwartungen seitens des Bundes ist man ausgegangen?
- Wie klar war, welche Bewertungskriterien der Bund anlegen würde?
- Inwiefern hat das die Anmeldungen beeinflusst?
- Gab es im Land Erwartungen seitens der Politik, was angemeldet werden sollte?

Auf welcher Grundlage konnten die Projekte beurteilt werden?

- Wer lieferte diese Informationen?
- Welche Akteure waren außerdem für den Prozess wichtig? Noch jemand?
(BMVI, nachgeordnete Behörden, Landesbetriebe, externe Dienstleister, DB Netz, politische Akteure, Wirtschaft, Zivilgesellschaft, Verbände, andere Bundesländer, Nachbarstaaten)
- Gab es eine Abstimmung der Maßnahmen im parlamentarischen Raum? Kabinettsbeschluss?
- Woher kamen Projekte, die noch nicht im BVWP 2003 enthalten waren?
- Inwiefern wurde die Öffentlichkeit in den Erarbeitungsprozess der Anmeldungen eingebunden? Wie relevant war das?
- Warum hat man diese Form der Öffentlichkeitsbeteiligung gewählt?
- Welche Verbände haben sich besonders engagiert? Wie wurde das wahrgenommen?
- Wie verlief die Zusammenarbeit mit dem Bund? Und mit den anderen Bundesländern?

Wie viel Aufwand steckt in jedem zusätzlich angemeldeten Projekt?

- Wie viel Aufwand bereitet die Erarbeitung der Anmeldungen im Vergleich zum Tagesgeschäft?

- Wie gut war es möglich, die Anforderungen des Bundes an die Anmeldungen zu erfüllen?
- Welche Ressourcen jedweder Art standen zur Verfügung, um die Erarbeitung der Anmeldungen zu erleichtern? Inwiefern stellt das vom Bund empfohlene Planungstool eine Hilfe dar?
- Was wäre anders (zusätzliche Anmeldungen, Begründungen, ...) möglich gewesen, wenn mehr Ressourcen zur Verfügung gestanden hätten?

Abschluss

Was kann man für das nächste Mal aus diesem Prozess lernen?

Gibt es von Ihrer Seite noch etwas, das noch erwähnt werden sollte?

B.3 Coding scheme

Table B.2: Encompassing coding scheme

Code	Definition
<i>Administrative capacity</i>	
External staff	refers to reliance on external staff, e. g. engineering offices
Shortage	refers to perceived lack of staff or other resources
Subordinate authorities	refers to staff and cooperation with subordinate authorities
Department staff	refers to in-house staff of the ministry
<i>Election programmes</i>	
rail: specific projects	programme mentions specific non-local rail projects
rail: rejection of specific project	programme mentions rejection of specific rail projects
rejection of rail expansion	programme is critical towards expansions of the rail network
rejection of road expansion	programme is critical towards expansions of the road network
rejection of position against car/road	programme rejects taking a clear stand pro road or rail
critical position on road	programme formulates a critical position towards road transport, e. g. in connection with climate change
road: specific projects	programme mentions specific long-distance road projects
road: rejection of specific project	programme mentions rejection of specific road projects
demand for rail expansion	programme demands an expansion of the rail network
demand for road expansion	programme demands an expansion of the road network
clear position pro rail	programme formulates a clear positive focus on rail transport
clear position pro road	programme formulates a clear positive focus on road transport
<i>External actors</i>	
Public	involvement of the broader public

Code	Definition
Local entities	involvement of local authorities, e. g. counties, city councils, mayors
DB	contacts with DB, e. g. in prior communication
International actors	involvement of international actors, e. g. neighbouring countries, regular cross-border meetings
other Länder	contacts with or knowledge about other <i>Länder</i>
Environmental groups	involvement of environmental groups, e. g. BUND, NABU
Economic groups	involvement of economic groups, e. g. Chambers of Commerce
<i>Functional arguments</i>	
Feasibility	relates to questions of technical and topographical feasibility of infrastructure expansion
Importance for Land	relates to the general significance of a certain transport infrastructure for the respective <i>Land</i>
Transportation demands	relates to more specific transportation demands in the <i>Land</i>
<i>General information</i>	
(In)Competence of others	relates to perceptions of the competence and incompetence of other actors
Interviewee's background	interviewee's professional and educational background
Law and regulations	references to laws and regulations on <i>Land</i> or federal level
Financial issues (Land level)	relates to mentionings of financial issues on the <i>Land</i> levels, e. g. budgetary emergency
<i>Orientation</i>	
Road - critical	interviewee voices critique concerning road transport
Rail expansion - critical	interviewee raises critique about rail infrastructure expansion
Rail expansion - positive	interviewee raises points in favour of rail infrastructure expansion
Road - positive	interviewee raises points in favour of road transport
Image	motivation related to the image of the ministry/ <i>Land</i> executive
Improvements for Land public	motivation from achieving something good for the public
Avoid trouble within Land	motivation from avoiding trouble e. g. in later planning and building stages
Public will/participation as value	participation as a value in itself or respect for the public will
"Good" work	motivation from delivering good and sound results as a value in itself
<i>Political influence</i>	
Functional politicisation	awareness of political leanings and wishes, anticipatory adherence to political superiors' expectations
Rejection of political influence	rejection of non-technical influences
Government/Coalition	involvement of the government as a whole or the coalition
Minister	involvement of the minister
Parties	involvement of parties or party actors
Landtag	involvement of the <i>Land</i> parliament, e. g. by raising questions, committee meetings
<i>Process</i>	

Code	Definition
Decision by Landtag	official decision by the respective <i>Land</i> parliament
Decision by Land cabinet	official decision by the respective <i>Land</i> government
Prestudies by subordinate authorities	use of pre-studies prepared by subordinate authorities or other public authorities
Prestudies by commissioned office	use of pre-studies prepared by engineering offices
Re-iteration of BVWP 2003	BVWP 2003 as a basis for project choice for BVWP 2030
Specialist proposal by ministry	first list of projects to propose prepared by the ministry
Specialist proposal by subordinate body	first list of projects to propose prepared by a subordinate authority
Collection of project from municipalities or regional entities	project proposals were collected from regional authorities
Prestudies by municipalities, NGOs, ...	use of pre-studies prepared by regional or external actors
Existence of a prior strategic planning document	availability of a strategic planning document, e. g. <i>Land</i> development plan, transport development plan
Documents developed by commissioned offices	project dossiers for upload in the federal database prepared by engineering offices (applies to road only)
Documents developed by subordinate authorities	project dossiers for upload in the federal database prepared by subordinate authorities (applies to road only)
Coalition bodies	involvement of coalition bodies or reliance on transport-specific agreements in the coalition treaty
interministerial coordination	relates to the role of interministerial coordination
Public consultation	relates to the use of public consultation on the <i>Land</i> level, e. g. online consultation
Regional conferences with TÖB and municipalities	relates to the use of regional conferences with public interest parties and local authorities
Referendum	use of a referendum on the <i>Land</i> level
Concept	refers to a decision-making concept explicitly developed for the BVWP 2030 on the <i>Land</i> level
Preparation: Consultation with economic actors	refers to consultations with economic actors
<i>Relation to the federal level</i>	
Demands for rule change	relates to dissatisfaction with current rules set by the federal level
Consultants	comments on the consultants/experts relied on by the federal level
Competences - critical	critical assessment of the distribution of competences, own competences or federal competences seen critical

Code	Definition
Priorisation by Länder	relates to prioritisation by the <i>Länder</i> despite this not being called for by the federal level
Participation by Länder/Taking Länder seriously	relates to assessments of the <i>Länder's</i> role in the process, e. g. whether their input was sufficiently valued
Time frame	relates to the federally planned schedule for the BVWP process, e. g. perceived lack of time
Transparency - negative	relates to a lack of transparency and information from the federal level to the <i>Länder</i>
Competences - affirmative	positive assessment of the distribution of competences, own competences or federal competences seen positive
Financial patterns	relates to financial patterns between the levels, e. g. demands for more funds from the federal level
Transparency - positive	relates to sufficient transparency and information from the federal level to the <i>Länder</i>
Anticipation	relates to attempts by the respective <i>Land</i> to anticipate federal decisions about BVWP projects
<i>Salience</i>	
Programmatic priority	relates to formulations of urgency of infrastructure policy in party documents
Urgency	relates to perceived technical urgency, e. g. due to interdependence of infrastructure projects
Disagreements between the coalition partners	relates to known or documented diverging views within the respective <i>Land</i> government
coalition: BVWP mentioned	coalition treaty explicitly mentions the BVWP 2030
pre-determination of BVWP procedure	coalition treaty pre-determines the procedure for decisions about infrastructure projects

C Project numbers and costs

C.1 Lists of proposed projects by the *Länder*

The lists of proposed road projects could be retrieved from the document published by the BMVI:

BMVI (2014). *Projektanmeldungen Straße*. <https://www.bmvi.de/SharedDocs/DE/Anlage/G/BVWP/bvwp-projektanmeldungen-strasse.pdf> (visited on 28/08/2020)

The lists of proposed rail projects have been retrieved from the sources listed in table C.1.

Table C.1: Lists of proposed rail projects

<i>Land</i>	Source
Baden-Württemberg	Ministerium für Verkehr Baden-Württemberg (2016). <i>Bundesverkehrswegeplan 2015 – Anmeldung Schienenprojekte</i> . https://vm.baden-wuerttemberg.de/de/politik-zukunft/bundesverkehrswegeplan/schiene-bvwp/ (visited on 06/08/2018).

Land	Source
Bayern	Bayerische Staatskanzlei (2013). <i>Pressemitteilung Nr. 95, 12. März 2013</i> . retrieved 05/09/2018.
Berlin	Senatsverwaltung für Umwelt, Verkehr und Klimaschutz (2016). <i>Bundesverkehrswegeplan 2030 – Neuarbeitung durch das BMVI. Einbindung und Rolle Berlins</i> . https://www.berlin.de/senuvk/verkehr/politik/bvwp/de/rolle_berlin.shtml (visited on 13/07/2020).
Brandenburg	Ministerium für Infrastruktur und Landesplanung (2013). <i>Bundesverkehrswegeplan 2015 (neu) Projektanmeldung Brandenburg zum Aus- und Neubau von Schienenstrecken</i> . https://mil.brandenburg.de/cms/detail.php/b1.c.330805.de?highlight=bundesverkehrswegeplan (visited on 07/06/2018).
Bremen	Senator für Umwelt, Bau und Verkehr (2013). <i>Bericht der Verwaltung für die Sitzung der Deputation für Umwelt, Bau, Verkehr, Stadtentwicklung und Energie (L) am 30.05.2013: Anmeldungen des Landes Bremen zum Bundesverkehrswegeplan 2015</i> . https://www.bauumwelt.bremen.de/sixcms/media.php/13/2013_BdV_Bundesverkehrswegeplan_Endf.pdf (visited on 19/06/2020).
Hamburg	Behörde für Wirtschaft, Verkehr und Innovation (2014). <i>Bundesverkehrswegeplan. Maßnahmenanmeldungen der Freien und Hansestadt Hamburg</i> . https://www.hamburg.de/contentblob/4633080/0948fa51940e7bff9a8b6fb31553bf82/data/bundesverkehrswegeplan-massnahmenanmeldung.pdf (visited on 19/06/2020).
Hessen	Hessischer Landtag (2013). <i>Kleine Anfrage der Abg. Karin Müller (Kassel) (BÜNDNIS90/DIE GRÜNEN) vom 14.05.2013 betreffend aktuell gemeldete Projekte Bundesverkehrswegeplan 2015 und Antwort des Ministers für Wirtschaft, Verkehr und Landesentwicklung. Drucksache 18/7377</i> .
Mecklenburg-Vorpommern	Infrastruktur und Landesentwicklung Ministerium für Energie (2013). <i>Pressemitteilung vom 10.04.: Wasserstraßen- und Schienenprojekte für Bundesverkehrswegeplan angemeldet</i> . https://www.regierung-mv.de/Landesregierung/em/Presse?id=47091&...1 (visited on 06/08/2018).
Niedersachsen	Freie Hansestadt Bremen, Freie und Hansestadt Hamburg, Mecklenburg-Vorpommern, Niedersachsen, Schleswig-Holstein (2014). <i>Fit für 2030 – Welche Schieneninfrastruktur braucht Deutschlands Norden? Anmeldungen der Schienenprojekte für den Bundesverkehrswegeplan 2015. Parlamentarischer Abend der Küstenländer 6. Mai 2014</i> .
Nordrhein-Westfalen	Ministerium für Bauen, Wohnen, Stadtentwicklung und Verkehr des Landes Nordrhein-Westfalen (2013). <i>Maßnahmenvorschläge für den Bundesverkehrswegeplan 2015, Bereich Schiene</i> . Letter to the federal minister of transport. Received via e-mail.
Rheinland-Pfalz	Ministerium des Innern und für Sport Rheinland Pfalz (2016). <i>Bundesverkehrswegeplan 2030</i> . https://mdi.rlp.de/de/unsere-themen/verkehr/aktuelles/bundesverkehrswegeplan/ (visited on 06/08/2018).
Saarland	Ministerium für Wirtschaft, Arbeit, Energie und Verkehr des Saarlands (2013). <i>Anlage</i> . Federal form completed by the ministry. Received via e-mail.
Sachsen	Sächsisches Staatsministerium für Wirtschaft, Arbeit und Verkehr und Deutsche Bahn AG (2014). <i>Strategiekonzept Schiene - Eisenbahninfrastruktur im Freistaat Sachsen</i> . https://publikationen.sachsen.de/bdb/artikel/22496/documents/30592 (visited on 06/08/2018).

<i>Land</i>	<i>Source</i>
Sachsen-Anhalt	Nahverkehrsservice Sachsen-Anhalt GmbH (2013). <i>Projektanmeldung zum Aus- und Neubau von Schienenstrecken Land Sachsen-Anhalt</i> . Internal working document. Not published, received via e-mail.
Schleswig-Holstein	Schleswig-Holsteinischer Landtag (2013). <i>Bericht der Landesregierung Anmeldungen des Landes Schleswig-Holstein für den Bundesverkehrswegeplan 2015</i> . Drucksache 18/497.
Thüringen	Thüringer Ministerium für Infrastruktur und Landwirtschaft (2018). <i>AW: Anmeldung von Schienenverkehrsprojekten zum BVWP 2030</i> . E-mail communication 06/08/2018.

C.2 Sources for project costs and numbers

The number of projects proposed for BVWP 2030 has been derived from the sources listed above. For BVWP 2003, the numbers approved and the respective costs are available from the final document:

BMVBW (2003). *Bundesverkehrswegeplan 2003*. <https://www.bmvi.de/SharedDocs/DE/Anlage/G/BVWP/bundesverkehrswegeplan-2003.pdf> (visited on 13/07/2020).

For the project costs for BVWP 2030, the costs of approved road projects have been used as a proxy for the dimension of proposed road projects. Again, these numbers are taken from the final document:

BMVI (2016a). *Bundesverkehrswegeplan 2030*. <https://www.bmvi.de/SharedDocs/DE/Publikationen/G/bundesverkehrswegeplan-2030-gesamtplan.pdf> (visited on 13/07/2020).

For rail projects, costs have – as far as available – been collected from:

BMVI (2016b). *Projektinformationssystem (PRINS) zum Bundesverkehrswegeplan 2030*. <https://www.bvwp-projekte.de/> (visited on 13/07/2020).

D Länder profiles

Calibration for QCA

Calibrations that are modified for robustness checks are marked with an asterisk.

Table D.1: Calibration profile for Baden-Württemberg

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	clear position that former road building has been oversized, extension should only happen in exceptional cases	1	clear positioning in favour of rail transport, expansion of rail network, four specific rail projects	1
F	transition-oriented behaviour towards federal expectations	focus on importance for Land	0	proposal even with certain anticipation of rejection	1
S	infrastructure is a salient topic	minister engaged in public consultation opening, much higher weight in coalition agreement than in election manifesto	1	minister strongly engaged	1
P	complex process	regional conferences with public and economic actors, clear criteria-based concept, expert assessment on the topic of temporary use of emergency lane vs. road expansion	1	regional conferences with public and economic actors, categorised proposals, partly clear criteria, decision on information basis as-is	0.75
C	high administrative capacity	additional software, sufficient staff for preparation of projects, backlog planning available	1	several rail-related sections	1
Q	transition-oriented output	lower number of projects, lower costs	1	considerable change in numbers and costs	1

Table D.2: Calibration profile for Bayern

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	general infrastructure expansion, wants federal programme for roads	0	requests 20 specific rail projects some of which are new constructions, no clear positioning	0.75
F	transition-oriented behaviour towards federal expectations	anticipation of stricter criteria, but little actual reaction to this, assumption that things will be as always	0.25	proposal regardless of federal expectations	1
S	infrastructure is a salient topic	higher weight in coalition document than in election programme, individual projects contested or politically required	0.25	minister refrains from restrictive positioning; high percentage in election programme and coalition agreement, political will for international projects	0.75
P	complex process	strong reliance on BVWP 2003, public participation, very bottom-up process in the responsibility of subordinate authorities	0.75	pre-studies commissioned on hub München and one together with CZ; additional studies financed by IHK and regions; input from local and economic actors, public participation	1
C	high administrative capacity	well staffed with rich organisational substructure	1	three to four sections for rail transport	1
Q	transition-oriented output	virtually no change in numbers, higher costs	0	considerable change in numbers and costs	1

Table D.3: Calibration profile for Berlin

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	extremely brief on road transport, no general rejection of car mobility, focus on hybrid and e-mobility	0.75 *	strong emphasis on rail and public transport, several expansion projects mentioned	1
F	transition-oriented behaviour towards federal expectations	clear focus on projects in accordance with federal criteria	1	decision with differentiation regional/long-distance rail in mind, restricted to project parts in city area, in one case anticipated rejection	0.25
S	infrastructure is a salient topic	political discussion about project specifications, no government decision, extensive treatment in coalition agreement	1	political desires were not an issue, no government decision	0
P	complex process	reliance on a prior planning document (city transport development plan), diploma thesis about new project, no public participation	0	reliance on prior planning document, long-standing projects, no public participation	0
C	high administrative capacity	continuous staff changes, commissioning of project proposals due to low staff level, no backlog planning, narrow time frame	0	close cooperation with transport association VBB, few staff, projects long-standing	0.25
Q	transition-oriented output	lower number of projects, lower costs	1	some change in numbers, however more restricted projects	0.25

Table D.4: Calibration profile for Brandenburg

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	careful general infrastructure expansion, names only one specific road project	0.25	no clear positioning, emphasis on relevance of regional rail, careful general infrastructure expansion, names two specific rail projects	0.25
F	transition-oriented behaviour towards federal expectations	emphasis on federal expectation to propose fewer projects, wish for clearer federal guidelines, choice based on study commissioned together with federal level	1	proposals regardless of chances	1
S	high salience	minister's wish for public participation, relatively extensive discussions in parliamentary committee, no mentioning in coalition agreement	0.75	no intra-ministerial coordination, <i>Landtag</i> approval via committee, topic not in coalition agreement, opinion to federal level not written by minister	0.25
P	complex process	clear methodology for project choice based on a study of weak points and the so-called "Blue Network", public participation	1	no external input sought, no concept but some reliance on plan for local/regional rail, pre-study for one regional rail project	0
C	high administrative capacity	working group of ministry, subordinate authority, commissioned office; some strain due to public participation under time pressure	0.75	reliance on transport association VBB; no rail expertise in ministry	0.25
Q	transition-oriented output	lower number of projects, lower costs	1	clear change in numbers, cost reduction as 40% of projects are ongoing and therefore no data available	0.75

Table D.5: Calibration profile for Bremen

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	clear position for transport transition, mentions one specific project (rather critically) for road	1	clear position for transport transition, emphasis on rail for goods transport, mentions two expansion ideas for rail, but more focussed on inner-city transport	0.75
F	transition-oriented behaviour towards federal expectations	no expressive anticipation of federal criteria, however reliance on the current demand plan and a federal pre-study	0.25	proposal regardless of federal expectations	1
S	infrastructure is a salient topic	relatively high percentage in election programme, interministerial coordination, extensive discussion in committee	0.25	BVWP for rail mentioned in coalition agreement, harbour connections urgent as transports exceed prognoses	1
P	complex process	internal revision of projects from BVWP 2003, involvement of external actors in parliamentary committee ('Deputation'), no public participation	0.25	continuous pre-studies by Bremen, DB and others; expert assessment for hub Bremen; involvement of external actors in parliamentary committee ('Deputation'), no public participation	0.75
C	high administrative capacity	committee document mentions <i>Länder</i> being burdened with considerable efforts for preparing the projects; preparation of project proposal by DEGES in context of existing service agreement	0.25*	reliance on studies that were already there, reliance that missing information for rail would be added on federal level later	0.75*
Q	transition-oriented output	lower number of projects, lower costs	1	clear switch from nothing to quite something	1

Table D.6: Calibration profile for Hamburg

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	no clear positioning, road as integral part of transport infrastructure, names five road projects	0	no clear positioning, 'optimisation' of rail network, names three specific rail projects	0.25
F	transition-oriented behaviour towards federal expectations	emphasis on federal criteria	1	emphasis on federal criteria, however ostensibly also proposed infrastructure for not federally owned rail	0.25
S	infrastructure is a salient topic	decision by senate, extensive discussion in committees; motorways with high relevance for hinterland connections; Hamburg as national and international hub	0.75	decision by senate; comparatively high percentage in election programme	0.25
P	complex process	individual pre-studies especially on one motorway project available, masterplan for harbour by HPA, mostly long-standing projects, no public participation	0.25	reliance on prior planning documents and existing studies, no public participation	0
C	high administrative capacity	no commissioning planned; extensive own pre-studies already available	0.75	for rail connections in harbour area responsibility with company <i>Hafenbahn</i> ; reliance on previous planning documents and independent studies on hub Hamburg	0.75*
Q	transition-oriented output	small change in numbers, costs about equal	0.25	considerably higher number of projects	1

Table D.7: Calibration profile for Hessen

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	clear position of continued road relevance, 10 specific projects plus "several ringroads and road shifts"	0	no clear positioning, but clear demand for rail expansion, names 17 rail projects	0.75
F	transition-oriented behaviour towards federal expectations	at least one project deliberately against federal criteria, proposal regardless of criteria, emphasis on Land necessities	0	federal criteria as basis; awareness of high priority in the eyes of federal level; couple of regional projects as suggestions for assessment	0.25
S	infrastructure is a salient topic	technical urgency due to bottlenecks in the main hub	0.75*	technical urgency due to bottlenecks in the main hub	0.75*
P	complex process	collection of proposals from local entities, no pre-selection	0.25	already-known projects, no public participation	0
C	high administrative capacity	proposal preparation commissioned; existing staff already occupied with other tasks; BVWP could be treated as voluminous but still rather side affair	0.75	Land has no responsibility for rail whatsoever (by law), few staff	0
Q	transition-oriented output	virtually no change in numbers, higher costs	0	clear change in numbers, involves two very large projects that account for more than half of the costs	0.75

Table D.8: Calibration profile for Mecklenburg-Vorpommern

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	asks for modal shift from road to rail, but also road network expansion, two specific road projects plus ringroads	0.25	clear positioning in favour of rail transport, five rail projects named	1
F	transition-oriented behaviour towards federal expectations	intensive pre-selection based on federal criteria	1	proposal even with certain anticipation of rejection	1
S	infrastructure is a salient topic	minister's interest in consensual project proposals with local level, rather no political desires from <i>Land</i> politics	0.25	tourism as political consideration	0.25
P	complex process	extensive pre-evaluation, public consultation in disputed cases, one formal referendum, much emphasis on transparency	1	for one project several assessments and working papers from a citizens' initiative, contact with DB Netz, but no further expert assessments, as this is not the <i>Land's</i> task	0.25
C	high administrative capacity	team of five (ministry and subordinate authorities) for concept preparation; focussed team of four (subordinate authorities and one external staff) for proposal preparation; additional software	1	cooperation of ministry and transport company VMV, high strain, information from federal level and DB, additional ministry section for goods transport	0.25
Q	transition-oriented output	lower number of projects, lower costs	1	considerably higher number of projects	1

Table D.9: Calibration profile for Niedersachsen

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	general infrastructure expansion, names three specific road projects	0.25	general infrastructure expansion, background of harbour connections, but names no specific rail projects	0.25
F	transition-oriented behaviour towards federal expectations	no attempt to anticipate federal decision, but certain attention to federal criteria in specificities	0.25	explicit criticism directed at federal criteria when developing own projects, use of federal criteria to justify projects	0.75
S	infrastructure is a salient topic	explicit exclusion of certain projects via coalition agreement	1	technical urgency for harbour hinterlands, already mentioned in coalition agreement	1
P	complex process	regional conferences with administrative actors, few economic actors; a number of existing studies, assessment of all projects taken into consideration	1	collection of proposals from local entities and organised interests; clear strategy formulated and projects derived from there	1
C	high administrative capacity	cooperation of two engineering offices (one for road planning, one for environmental planning) and subordinate authority	0.75	one of the staff with rail engineering background, headed the external study that was then the basis for project proposals, additionally reliance on former preparatory work (Ahrensburger Liste)	0.75
Q	transition-oriented output	more projects, higher costs	0	considerably higher number of projects	1

Table D.10: Calibration profile for Nordrhein-Westfalen

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	no clear positioning, very hesitant treatment of road transport, new constructions where needed, no specific projects	0.75	no clear positioning, expansion of rail network, names seven specific rail projects	0.75
F	transition-oriented behaviour towards federal expectations	ready reaction to federal demands as concerns individual projects, awareness that the proposal list is convoluted	0.25	anticipation of federal decision, proposal of at least one project despite the current demand plan, strategic information	0.25
S	infrastructure is a salient topic	political coordination on which proposals to hand in and which not, individual projects excluded due to political reasons	0.75	a lot of political contacts, that were considered in drafting the final list; high percentage in election programme	0.75
P	complex process	participation (by law) of regional representative bodies, acceptance of additional proposals by IHK and BUND; no specific pre-studying	0.75	prioritisation, integrated regular interval timetable, broad commissioning of studies for all projects not yet studied; consultations with economic actors, participation (by law) of regional representative bodies	1
C	high administrative capacity	additional software, subordinate authority prepared proposals, sidelined other projects, some strain also for ministry	0.75	competence centre for rail with seven or eight engineers available, four ministerial staff	1
Q	transition-oriented output	more projects, higher costs	0	considerably higher number of projects	1

Table D.11: Calibration profile for Rheinlan-Pfalz

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	emphasis on continued relevance of road, fourteen specific road projects	0	general infrastructure expansion, rail re-activation, three rail projects	0.75
F	transition-oriented behaviour towards federal expectations	clear focus on projects in accordance with federal criteria	1	emphasis on federal criteria	0
S	infrastructure is a salient topic	political working group, explicit exclusion of certain projects via coalition agreement	1	political working group, given the parliamentary discussion no focus on rail, one rail project politically endorsed long ago (Kohl-Mitterand), decision-making rather diffuse, final decision is a political one, one project especially pressured politically	1
P	complex process	no encompassing concept, but some pre-sorting; feasibility studies for all yet unstudied projects; no public participation	0.75	for one project study available, for one other project a study was ongoing with the federal level, no public participation	0.25
C	high administrative capacity	road expertise inside ministry, possibility to reshuffle resources	1	few staff, extremely limited competences (by law)	0
Q	transition-oriented output	lower number of projects, slightly lower costs	0.75	some change, however the much higher costs are driven by one large project	0.25

Table D.12: Calibration profile for Saarland

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	clear position of continued road relevance, expansion of road network but only where necessary	0.25	some critical statements on CO ₂ , three specific rail projects, three more (long-distance) for public transport in general terms	0.25
F	transition-oriented behaviour towards federal expectations	clear attempt to abide by the rules, perceived that it would be financially irresponsible to propose projects that do not succeed	1	clear focus on federal criteria, rejects proposing projects just out of protest	0
S	infrastructure is a salient topic	rejection of political influence	0	proposed project politically very much desired and supported, long-standing, specific importance for <i>Land</i>	1
P	complex process	collection of proposals from local entities, reliance on prior planning document; mainly already existing projects where info already available, one new project on basis of traffic survey	0.25	reliance on prior planning document; prior study about to be concluded for rail project, no public participation	0
C	high administrative capacity	few staff	0	few staff	0
Q	transition-oriented output	lower number of projects, lower costs	1	no change	0

Table D.13: Calibration profile for Sachsen

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	demands road expansion, considerable emphasis on road, names eight road projects	0	no clear positioning, demands rail expansion, names six specific rail projects	0.75
F	transition-oriented behaviour towards federal expectations	focus on demands and requirements within Land, no active restriction of proposals	0	clear focus on long-distance rail, confirmation of different responsibilities of the two levels, however decisions based on Land priorities and not on success chances on the federal level	0.25
S	infrastructure is a salient topic	explicitly no government decision, but emphasis on ministry's responsibility, low level of attention in coalition document as well as in parliament	0	political will for furthering border-crossing projects, covering letter for proposal lists by division head (not by minister)	0.25
P	complex process	prior planning document of Land; public participation	0.75	reliance on prior planning document of Land; some proposals from local entities, no public participation	0.25
C	high administrative capacity	project group of engineers from ministry and subordinate authorities, assessments for new projects by external offices, some strain on ministry to the detriment of other tasks	0.75	some strain to prepare information, reliance on prior planning documents and existing studies	0.25
Q	transition-oriented output	lower number of projects, lower costs	1	quite some change in numbers, formal cost reduction because 27% of projects ongoing	0.75

Table D.14: Calibration profile for Sachsen-Anhalt

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	no clear positioning, stresses prior planning documents, three specific road projects plus ringroads	0	rail expansion rather hesitant, one specific project	0
F	transition-oriented behaviour towards federal expectations	hand all relevant projects over to federal level, incl. projects rejected before, demonstrate <i>Land's</i> interests	0	known disagreement about rail responsibilities that could not be solved, therefore proposals regardless of federal expectations	1
S	infrastructure is a salient topic	early-on government decision about procedure and list to pursue further, committee discussions	0.75	one (previous) project added on political level, else little discussion, somewhat higher weight in coalition agreement	0*
P	complex process	public participation, strong reliance on BVWP 2003 and on <i>Land</i> development plan, clear criteria for inclusion of additional projects based on pre-analysis	1	proposal by transport association NASA based on standards from regional transport plan additionally to BVWP-2003 projects, committee discussion, no public participation	0.75
C	high administrative capacity	two persons in the ministry, plus subordinate authority overseeing externals preparing proposals for new projects; commissioning of tasks due to limited staff availability	0.25*	proposal by transport association NASA, no additional studies etc., as resources of <i>Land</i> are limited	0.25*
Q	transition-oriented output	higher number of projects, lower costs	0.25	considerably higher number of projects	1

Table D.15: Calibration profile for Schleswig-Holstein

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	infrastructure expansion, names five specific road projects plus ringroads	0	no clear positioning, rail infrastructure expansion, names no rail project, but high priority to rail expansion for goods transport	0.25
F	transition-oriented behaviour towards federal expectations	emphasis on federal demand to propose fewer projects	1	no anticipation, proposed projects that were seen as important for <i>Land</i>	1
S	infrastructure is a salient topic	formal vote in parliament, procedure for BVWP mentioned in coalition agreement	1	explicit focus on rail expansion, formal vote in parliament, procedure for BVWP mentioned in coalition agreement	1
P	complex process	no external input, sorting out WB of BVWP 2003 according to clear criteria, no public participation	0.25	consultations with economic and administrative actors, no public participation	0.25
C	high administrative capacity	subordinate authority with external commissions, in general low staff level, one person for several areas, not easy for BVWP, therefore lean process with few proposals; no capacities for public participation	0	limited resources for additional activity, however high case knowledge, one person in ministry, some more at transport association nah.SH; mainly preparing information that was already there; no capacities for public participation	0
Q	transition-oriented output	lower number of projects, lower costs	1	considerably higher number of projects, formal reduction of costs as for many projects no costs calculated	1

Table D.16: Calibration profile for Thüringen

Cond.	Set	Road	Score	Rail	Score
E	transition-oriented election programme	looks mostly back on achievements, 'finalisation' of large road corridors, names no specific road projects but ringroads in general	0.25	no clear positioning, one specific (ongoing) rail project	0
F	transition-oriented behaviour towards federal expectations	awareness of financial restriction and therefore no new projects, however, no expression of anticipation of criteria in project selection	0.75*	focus on projects with realistic chances, aim of not causing unnecessary work for the federal level	0
S	infrastructure is a salient topic	not much political discussion, some political pressure to prioritise	0	not much political discussion	0
P	complex process	no external input, long-standing projects only, no pre-assessment etc.	0	prior discussions with DB, else no external input, no public participation	0
C	high administrative capacity	general rule to commission work from external offices, no own planning capacities at <i>Land</i> level	0*	only few staff, some support from land-owned regional rail company, no resources for additional studies, no trust in studies from third parties	0
Q	transition-oriented output	small change in numbers, considerably lower costs	0.25	little change	0

E QCA

E.1 Reproduction data and code

A csv-file with the data as well as the R code can be accessed in the following dataverse: https://data.goettingen-research-online.de/dataverse/rademann_bvwp2030

E.2 Robustness

This section assembles the analysis of the negated outcomes, the truth tables for the dataset with changed calibrations as well as the xy-plots for necessity not shown in the analysis in chapter 6. The truth tables resulting from changes in the consistency threshold are not explicitly listed here, as they can be logically inferred from the given truth tables.

Negated outcomes

There are no necessary conditions for the negated outcomes. The most consistent ones (-C with 0.818, ~E and ~F with 0.767 each) fail to cross the conventional threshold of at least 0.9 for necessary conditions.

Table E.1: Truth table for the negated outcome ‘Not having a complex process’ (~P)

S	C	OUT	n	incl	PRI	cases
0	0	1	9	0.868	0.828	BB_rail, BE_rail, BR_road, MV_rail, SL_road, SN_rail, ST_rail, TH_rail, TH_road
1	0	0	7	0.763	0.679	BE_road, HE_rail, RP_rail, SH_rail, SH_road, SL_rail, ST_road
0	1	0	4	0.560	0.312	BY_road, HA_rail, MV_road, SN_road
1	1	0	12	0.340	0.162	BB_road, BR_rail, BW_rail, BW_road, BY_rail, HA_road, HE_road, NI_rail, NI_road, NW_rail, NW_road, RP_road

OUT = sufficient for having the outcome ~P; n = number of cases; incl = consistency; PRI = prevalence of explaining the non-outcome over explaining the outcome

Table E.2: Solution term and covered cases for the negated outcome ~P

$\sim S^* \sim C \Rightarrow \sim P$	inclS	PRI	covS	covU	cases
$\sim S^* \sim C$	0.868	0.828	0.5	—	BB_rail, BE_rail, BR_road, MV_rail, SL_road, SN_rail, ST_rail, TH_rail, TH_road

inclS = consistency of the solution term; PRI = prevalence of explaining the non-outcome over explaining the outcome; covS = coverage of the solution; covU = unique coverage of the respective solution term

Table E.3: Truth table for the negated outcome 'Not having a transition-oriented output' ($\sim Q$)

E	F	P	OUT	n	incl	PRI	cases
0	0	0	1	4	0.800	0.750	HA_road, HE_road, SL_road, TH_road
0	0	1	0	4	0.684	0.625	BY_road, NI_road, SN_road, ST_road
1	0	0	0	5	0.579	0.429	BE_road, BR_road, HE_road, RP_road, SN_road
0	1	0	0	6	0.444	0.286	BB_road, HA_road, SH_road, SH_road, SL_road, TH_road
1	0	1	0	3	0.400	0.308	BW_road, NW_road, NW_road
1	1	0	0	2	0.333	0.077	BE_road, MV_road
0	1	1	0	5	0.231	0.130	BB_road, MV_road, NI_road, RP_road, ST_road
1	1	1	0	3	0.150	0.105	BR_road, BW_road, BY_road

OUT = sufficient for having the non-outcome $\sim Q$; n = number of cases; incl = consistency; PRI = prevalence of explaining the non-outcome over explaining the outcome

Table E.4: Solution term and covered cases for the negated outcome $\sim Q$

$\sim E^* \sim F^* \sim P \Rightarrow \sim Q$	inclS	PRI	covS	covU	cases
$\sim E^* \sim F^* \sim P$	0.800	0.750	0.372	—	HA_road, HE_road, SL_road, TH_road

inclS = consistency of the solution term; PRI = prevalence of explaining the non-outcome over explaining the outcome; covS = coverage of the solution; covU = unique coverage of the respective solution term

Changed calibration

Table E.5: Truth table for the outcome 'Having a complex process' with changed calibrations

S	C	OUT	n	incl	PRI	cases
1	1	1	11	0.870	0.829	BB_road, BW_road, BW_road, BY_road, HA_road, NI_road, NI_road, NW_road, NW_road, RP_road, ST_road
0	1	0	6	0.733	0.619	BR_road, BY_road, HE_road, MV_road, SN_road, ST_road
1	0	0	6	0.459	0.231	BE_road, BR_road, RP_road, SH_road, SH_road, SL_road
0	0	0	9	0.297	0.071	BB_road, BE_road, HA_road, HE_road, MV_road, SL_road, SN_road, TH_road, TH_road

OUT = sufficient for having the outcome Q; n = number of cases; incl = consistency; PRI = prevalence of explaining the outcome over explaining the non-outcome

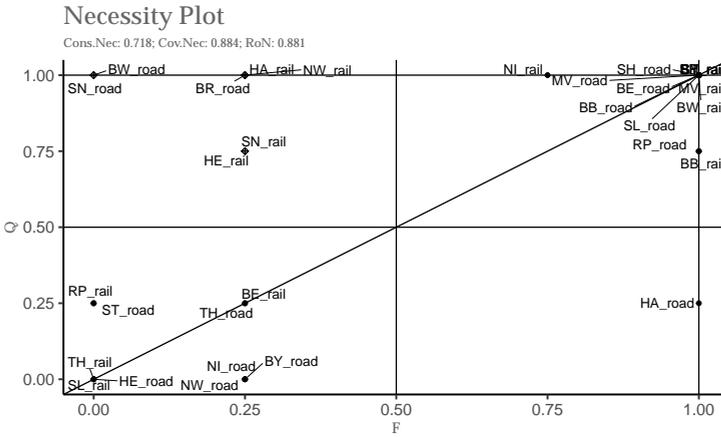


Figure E.1: Necessity plot with changed calibrations for $C \Leftarrow P$

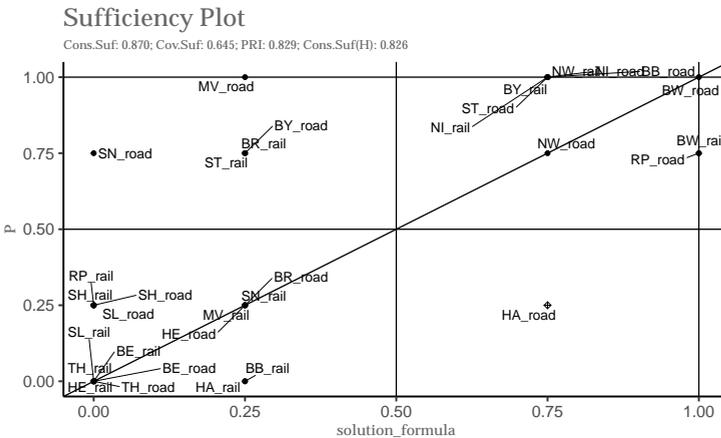


Figure E.2: Sufficiency plot for $S^*C \Rightarrow P$ with changed calibrations

Table E.6: Truth table for the outcome ‘Transition-oriented output’ with changed calibrations

E	F	P	OUT	n	incl	PRI	cases
1	1	0	1	1	0.938	0.909	MV_rail
1	1	1	1	3	0.900	0.895	BR_rail, BW_rail, BY_rail
0	1	1	1	5	0.885	0.870	BB_road, MV_road, NI_rail, RP_road, ST_rail
0	1	0	0	6	0.852	0.810	BB_rail, BE_road, HA_road, SH_rail, SH_road, SL_road
1	0	1	0	3	0.750	0.692	BW_road, NW_rail, NW_road
1	0	0	0	5	0.684	0.571	BE_rail, BR_road, HE_rail, RP_rail, SN_rail
0	0	1	0	4	0.444	0.333	BY_road, NI_road, SN_road, ST_road
0	0	0	0	5	0.364	0.222	HA_rail, HE_road, SL_rail, TH_rail, TH_road

OUT = sufficient for having the outcome Q; n = number of cases; incl = consistency; PRI = prevalence of explaining the outcome over explaining the non-outcome

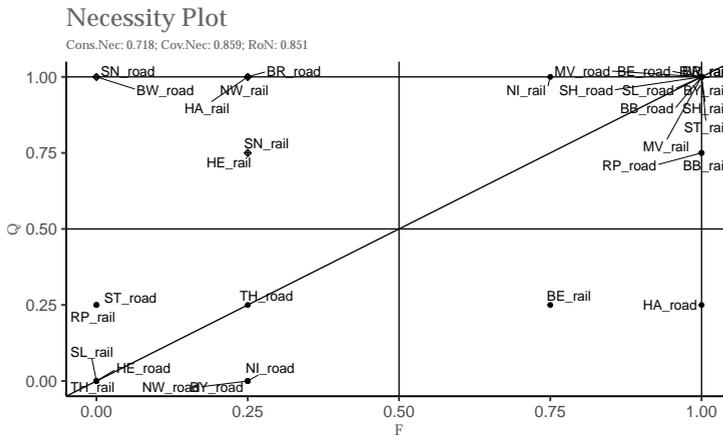


Figure E.3: Necessity plot with changed calibrations for $F \Leftarrow Q$

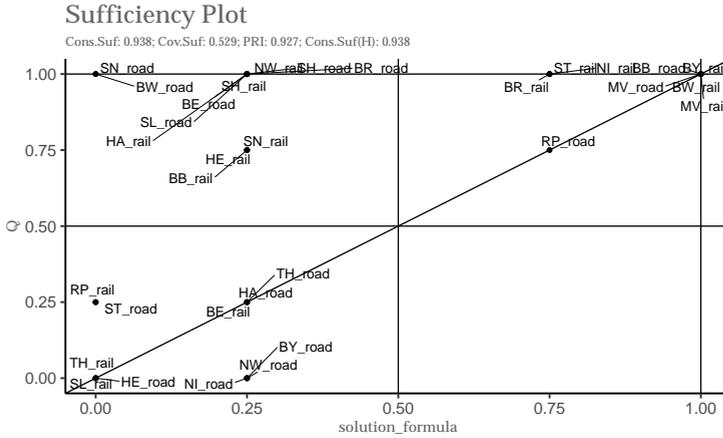


Figure E.4: Sufficiency plot for $E^*F + F^*P \Rightarrow Q$ with changed calibrations

Cluster diagnostics

Table E.7: Truth table for outcome ‘Having a complex process’ with changed calibrations and condition ‘city’ added

S	C	city	OUT	n	incl	PRI	cases
1	1	0	1	10	0.925	0.906	BB_road, BW_rail, BW_road, BY_rail, NI_rail, NI_road, NW_rail, NW_road, RP_road, ST_road
0	1	0	1	5	0.833	0.765	BY_road, HE_road, MV_road, SN_road, ST_rail
1	0	1	0	2	0.500	0.286	BE_road, BR_rail
1	1	1	0	1	0.500	0	HA_road
1	0	0	0	4	0.444	0.211	RP_rail, SH_rail, SH_road, SL_rail
0	1	1	0	1	0.333	0	BR_road
0	0	0	0	7	0.310	0.091	BB_rail, HE_rail, MV_rail, SL_road, SN_rail, TH_rail, TH_road
0	0	1	0	2	0.250	0	BE_rail, HA_rail

OUT = sufficient for having the outcome P; n = number of cases; incl = consistency; PRI = prevalence of explaining the outcome over explaining the non-outcome

Table E.8: Truth table for outcome 'Having a complex process' with original calibrations and condition for *Länder* at the outer border added

S	C	B	OUT	n	incl	PRI	cases
0	1	1	1	3	0.938	0.909	BY_road, MV_road, SN_road
1	1	1	1	9	0.914	0.897	BB_road, BW_rail, BW_road, BY_rail, NI_rail, NI_road, NW_rail, NW_road, RP_road
1	1	0	0	3	0.583	0.375	BR_rail, HA_road, HE_road
0	1	0	0	1	0.556	0.200	HA_rail
1	0	0	0	3	0.467	0.273	BE_road, HE_rail, ST_road
1	0	1	0	4	0.391	0.176	RP_rail, SH_rail, SH_road, SL_rail
0	0	1	0	4	0.375	0.091	BB_rail, MV_rail, SL_road, SN_rail
0	0	0	0	5	0.318	0.167	BE_rail, BR_road, ST_rail, TH_rail, TH_road

OUT = sufficient for having the outcome P; n = number of cases; incl = consistency; PRI = prevalence of explaining the outcome over explaining the non-outcome

References

The reference section is organised in three sub-sections: All scientific sources are listed under the heading *Literature*. The sub-section *Cited materials* starting on page 290 collects documents from organisations as well as news items. All referenced software is listed under *Software* starting on page 297.

Literature

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In order to achieve a transition from a transport system centred on the individual car to one centred on (electrified) rail a new focus in infrastructure planning is needed. The preparation of project proposals for the Federal Transport Infrastructure Plan 2030 on the sub-national level in Germany provides an opportunity to study decision-making processes in ministries and compare their respective results in this respect.

Using document analysis, expert interviews, qualitative content analysis as well as QCA, this thesis in political science analyses how decision-making processes within bureaucracies impact the decision output in transport infrastructure planning. It contributes to the discussion on bureaucracy-politics interactions that is relevant beyond the German case.

One result is that ministries tend to use complex decision-making processes for topics deemed salient as long as the available capacity permits it. Consequently, in order to conduct legitimacy-enhancing steps – such as public participation – a well-funded bureaucracy is indispensable.