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RESEARCH ARTICLE

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Politics of knowledge use: epistemic governance in marine spatial planning

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ABSTRACT

We examined the application of knowledge in land-use planning as epistemic governance and explored how actors wield institutional power while legitimising the use of knowledge. By applying a neo-institutionalist analytical framework of epistemic governance to discourse analysis, we investigated how actors invoke institutions of science and law while constructing a legitimate rationality. Specifically, we asked how new knowledge of underwater marine areas was invited into a marine spatial planning pilot in Finland. We determined that, while legitimising the use of new marine-life knowledge, the actors invoked law and science by granting the new knowledge various and intermingled meanings that disambiguated and depoliticised nature values into tangible measures. Moreover, uncertainties about the new knowledge spurred doubts which facilitated a stronger political approach that applied precautions. We suggest that in the regulative context of planning there is an institutional demand for techno-legal rationality in which the institutional appropriateness of knowledge is crucial. The lack of legitimate ontological authority allows for a political yet institutionally fit-for-purpose interpretation of reality. Thus, our study contributes to the literature on planning as governance and provides insights of the politics of knowledge use in planning as something not necessarily strategic and conscious, but also routine and institutional.

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Discourse analysis; institutions; knowledge use; legitimisation; marine spatial planning

Introduction

Land-use planning often exemplifies how local governments institutionalise the rationalist ideal of knowledge-guiding-action as they harness instrumental aspects of science to pursue conscientious developments. Modernist planning aims to control space and time according to the objective scientific evidence of need (Faludi & Waterhout, 2006; Krizek et al., 2009). However, with more recent theoretical developments of social constructivism, contemporary planning theory has broken down the idea of the unified categorisation of knowledge as an exclusively expert resource that relies on a straightforward, linear relationship between knowledge and action.

The democratisation of planning has not only invited multiple knowledge sources to planning activities with the goal of more meaningful dialogue, collaboration and deliberation (Rydin, 2007; Sandercock, 1998), but it has also broken down the image of planning as a neutral – even apolitical – technical practice (Huxley & Yiftachel, 2000; Tewdwr-Jones & Allmendinger, 1998). In planning research, this has moved the focus towards planning as governance, which often occurs through persuasion and the pursuit of legitimacy (Davoudi, 2006; Lennon, 2020, 2014; Throgmorton, 1993). To this day, planning as governance is seen as

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inseparable from politics and power; planning as governance utilises knowledge and rationality while defining what counts as reality (Flyvbjerg, 1998).

Previous research has suggested that, in contemporary planning, scientific knowledge is mostly used strategically to promote certain policies and interests (Cowell & Lennon, 2014; Hodgson et al., 2019; Lennon, 2014; McKenzie et al., 2014). Moreover, the techno-rational institutional framework invites debate, which can muddle conventional concepts of reality (Lennon & Scott, 2015), such as those framed by experience and emotions. Furthermore, the demand for deliberative, evidence-based planning generates knowledge claims that often entangle facts and values in a way reminiscent of 'black-boxes of evidence'. Such knowledge claims are difficult to open and discuss; hence, they tend to thwart conventional methods of gaining knowledge from discussion (Rydin, 2019; Rydin et al., 2018). In this paper, we focused on the politics of present-day land-use planning and the discursive and rhetorical dimensions of legitimising knowledge use and related social mechanics of persuasion, to unpack the idea of strategic knowledge use and reveal the more unconscious and routine dimensions of it.

Toward this end, we build upon earlier works on planning as governance and contribute to them by scrutinising the politics of knowledge use and the ways in which different rationalities are discursively legitimised. We examine how power operates as it defines reality in the context of spatial planning, which is ostensibly deliberative and evidence-based. While analysing empirically the case of a marine spatial planning (MSP) pilot in which accommodations for marine wildlife were planned in Finland for the first time, we ask how institutions of science and law and their authorities were jointly deployed and integrated while justifying specific definitions of reality and legitimate rationality. With this, we seek to pay attention to the use of knowledge as social activity in the context of simultaneously constraining and enabling institutional aspects (Healey, 1997; Schmidt, 2012, pp. 86 and 91).

As a premise, we acknowledge that deliberative forms of governance, such as planning, consist of multiple potentially legitimate rationales. In the democratic context, knowledge and rationality are assessed according to not only their validity and usability but also their acceptability (Dewulf et al., 2020). Hence, it is not unusual that, during planning, a non-scientific rationality can dominate (Flyvbjerg, 1998; Tennøy et al., 2016).

To understand the social construct of planning and its simultaneously constraining and enabling institutional aspects (Schmidt, 2012, pp. 86 and 91), we approached the problem of knowledge use as one of governance, which is epistemic by nature. The epistemic governance framework was developed to study the social practice of politics and analyse how power is wielded discursively as people try to convince others to change their political courses of action (Alasuutari & Qadir, 2019). The framework also addresses the agency of actors who attempt to influence others' concepts of reality and utilise those concepts as tools of governance (Alasuutari & Qadir, 2019). Hence, the framework has enabled us to elaborate the discursive level of 'planning as practice of knowing' (Davoudi, 2015), including how knowledge use creates, reinforces or disrupts institutional planning structures.

We structured our paper as follows: First, we introduce our theoretical framework and describe our case, data and methods. We then discuss our empirical findings based on an analysis of the official documents of an MSP pilot in Kymenlaakso, Finland. Finally, we consider how the epistemic governance of knowledge use affected the planning practices of the case.

Theoretical framework: epistemic governance and the authority of science and law

From an institutionalist perspective, planning is a culturally bounded social practice. That is, it operates via meanings and values, which actors express while they interact with others (Healey, 1997, pp. 64–65). This socio-cultural embeddedness of all individuals' intentions, actions and interactions generates a practical consciousness that connects scientific knowledge and instrumental reason to moral principles (Giddens, 1984; Healey, 1997, p. 44). Following Michel Foucault's eminent studies of power and knowledge, language and discourse that constitute the practical consciousness and local knowledge are acts of power. Science plays a two-fold role in this dynamic as an institution and as the source of a discursive practice that produces knowledge that is reliable according to scientific criteria and replicable when using the scientific method (Foucault, 1980,

p. 112). In society, science participates in the institutionalisation of certain discourses by employing its institutional position for credibility (Hajer, 2003, pp. 60–61). To this end, the reasoning presented during a planning dialogue carries power in a way that can be wielded; therefore, it can be analysed. The analyst's task is to examine how politics operate via different epistemic premises.

The epistemic governance framework suggests that in contemporary society, a flat social order (e.g. a planning commission) grounds rationality in ontological facts as one of many strategies through which power is wielded (Alasuutari & Qadir, 2014, 2019). Moreover, governance is undertaken by actors aiming to advance their own political goals by appealing to others' deep-seated values and beliefs (Alasuutari & Qadir, 2014). According to Alasuutari and Qadir (2014), actors simultaneously focus on three objects of epistemic work while seeking support for their claims: the ontology of the environment, actors and identifications and norms and values. In so doing, actors aim to present their reasoning in ways that make their audiences likelier to agree.

In addition to convincing others with an 'offer that others can't refuse' (p. 167), actors strengthen their influence by citing sources to make their claims more plausible, respected or feared (Alasuutari, 2018). Citing sources entails authority and persuasion, which actors wield as epistemic capital while steering others' conduct. There are at least four types of authority that actors employ in this fashion: capacity-based (respected or feared), ontological (science and expert knowledge), moral (commonly accepted principles, laws and customs) and charismatic (personal or institutional fame) (See Figure 1.). By creatively accumulating and combining these four types of epistemic capital, actors can boost their claims and show others how powerful they are (Alasuutari, 2018).

Science is widely respected and capable of presenting a view of reality that people consider legitimate and credible. Therefore, in society, science is not only a knowledge production system; it is also a form of ontological authority that can be employed by referring to empirical evidence, expert opinions and research. By alluding to scientific facts and institutions, actors convince their audiences that their arguments rely on a credible picture of reality and are thus legitimate. However, science does not simply possess ontological authority. In our rationalised culture, where the commitment to science and its use in decision-making is widely acknowledged, science also possesses moral authority, especially in discussions that concern the use of scientific knowledge (Qadir & Syväterä, 2021). Moreover, ontological authority is exclusive to scientists and experts. Alasuutari (2018) argued that certain religious figures possess ontological authority in terms of faith. Through this lens, the picture of evidence-based decision-making becomes nuanced. The basic assumption behind the idea of evidence-based decision-making is that objective knowledge should guide action. However, the epistemic governance framework suggests that evidence and its providers also carry ontological authority, which provides a powerful position in political debates. Unpacking closed categories of knowledge and action by

Figure 1. Four types of authority employed in epistemic governance (Alasuutari, 2018).

allowing more sensitivity to multiple rationales and their institutional authority and power opens an avenue for critical planning research.

Law is another important authoritative institution in the planning context. In statutory and regulatory contexts, laws carry a range of authority to which officials often refer. For example, for most people, the idea of being prosecuted and punished for violating the law is a very influential deterrent. The epistemic governance approach does not reject self-evident authority and the idea of hierarchy in legalistic cultures; rather, it adds to it. From an epistemic governance perspective, laws are codifications of moral principles (Alasuutari, 2018). Although regulations and their interpretations are institutionalised, they are nevertheless moral activities. Therefore, while interpreting laws, people draw on moral principles and the technical aspects of a given situation to make decisions (Alasuutari, 2018).

Laws and regulations are not the only norms through which legitimacy is generated. Political, social and cultural norms also create discourses that are articulated during decision-making processes as legitimate justifications (Behagel & Turnhout, 2011; Turnhout et al., 2015). In a deliberative context, such as planning, the legitimacy of a collective decision depends on publicly presented policy discourses that resonate with public opinion (Dryzek, 2001). Therefore, when analysing the construction of legitimacy, the process of discursive justification and the discourses that reflect a variety of norms and ontologies provide relevant units of analysis.

Context and case: the MSP pilot in Kymenlaakso, Southeast Finland

This article examines how new knowledge about marine areas was legitimised during a planning process of the Regional Council of Kymenlaakso in Southeast Finland in 2012–2014. The process resulted in a regional plan which included elements of 'analysing and allocating spatial and temporal distribution of human activities in

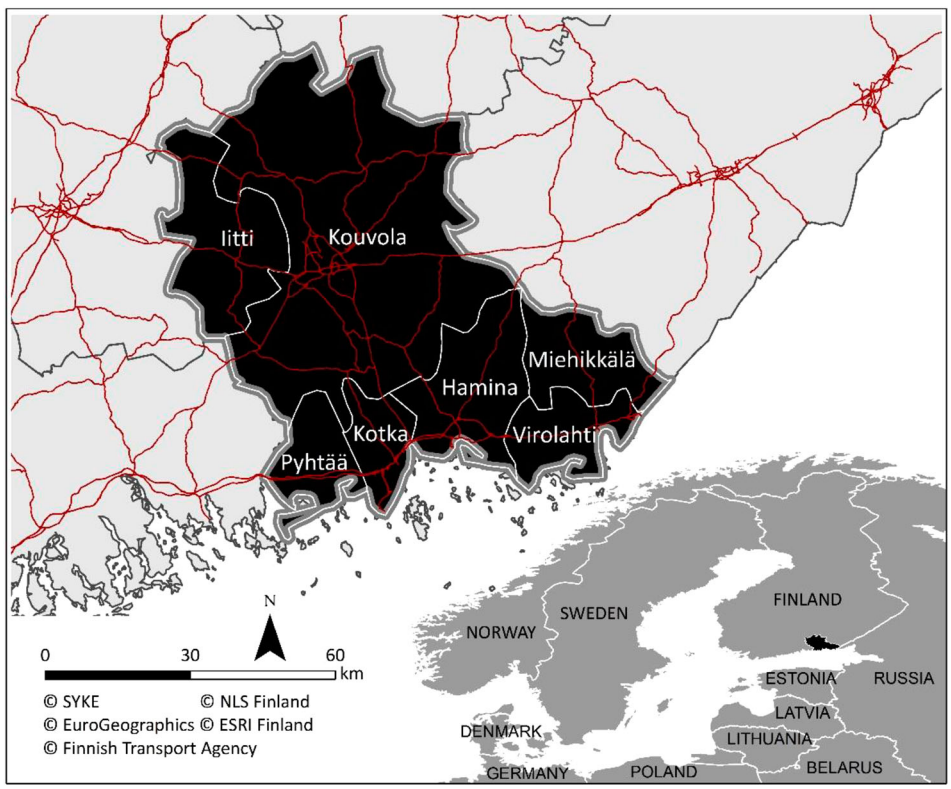

Figure 2. Map of the Kymenlaakso region during the preparation of the Trade and Marine Plan.

marine areas to achieve ecological, economic and social objectives' (UNESCO, n.d.). Because the analysed regional plan was prepared and accepted prior to the adoption of the EU MSP Directive, Kymenlaakso planners approached it as an MSP pilot (see also European MSP Platform, 2021, n.d.). (Figure 2).

The Kymenlaakso region is known for its coastal location along the Gulf of Finland, where the sea borders one-fourth of the area (Regional Council of Kymenlaakso, 2014). Coastal areas and the sea are important ecosystems and habitats for marine life. In addition to their value as important ecosystems, coastal areas and the sea are crucial to industry, tourism, maritime transport and fishing. Issues of port operations and shipping were considered in regional planning already in 2010. However, in the case of this study, with an improved understanding of the sea and the increasing risks and pressures on marine life and bottom sediments, the MPS issue received special attention. With growing industrial and economic interests in the region, the Eastern Gulf of Finland already suffers from eutrophication, environmental damage and sediment pollution caused by maritime activities (Regional Council of Kymenlaakso, 2014).

Land-use planning is strongly regulated in Finland. In the mainland, there are 18 regions governed by their own regional councils, authorities and statutory municipality collectives. Regional planning and regional development are the two main responsibilities of these regional councils. According to the planning hierarchy, regional planning outlines strategic planning at the supra-municipal level and provides general guidance for more detailed, lower-level planning for which municipalities are solely responsible. The Regional Council of Kymenlaakso pioneered MSP as part of its regional planning task, which is regulated according to the Land Use and Building Act (LUBA 132/1999). During our case study (2012–2014), the amendment in LUBA that regulates maritime planning in Finland was not yet in force.[1] Hence, LUBA's original regulations for regional planning were used. The final plan was accepted by the Regional Council of Kymenlaakso in 2014 as the 'Trade and Marine Plan'.

LUBA regulates regional planning processes to create conditions for a good living environment and to promote sustainable development through a well-organised system of land-use planning and building construction. In the context of regional planning, it aims to reconcile safeguarding of nature values[2] with the sustainable use of natural resources. During planning, the impact of a proposal must be analysed and evaluated by authorities. Furthermore, LUBA requires planners to listen to stakeholders who are allowed to comment on a proposal via written statements, to which planners must respond. Moreover, in LUBA, the rights of landowners are strongly protected.

The regulatory framework of planning includes laws other than the LUBA. While reconciling the safeguarding of nature values and with the needs of sustainable use of natural resources, planners must also follow the Nature Conservation Act (1096/1996), the Environmental Protection Act (527/2014) and Forest Law (1093/1996). The Act on the Environmental Assessment of Authorities' Plans and Programmes (200/2005) provides specific guidelines for assessing the environmental impacts of any plan. In addition to national regulations, Finnish land-use planning must also follow EU regulations and guidelines. For example, the Marine Strategy Directive, the Water Framework Directive and the Marine and Coastal Spatial Planning Objectives provide MSP guidelines.

Data and methods

Our research design is based on the qualitative analysis of 55 total published documents, meeting notes, written feedback, letters, statements, plan commentaries, transcripts and planners' official replies to stakeholders from the Regional Council of Kymenlaakso MSP planning process, gathered in November 2018 from the Council's publicly available archives and website. We used the NVivo software package to categorise, code and analyse the data. Our analysis comprised four phases, each further deepening our analysis by narrowing the data under scrutiny and focusing on the prominent aspects of our research question. The four phases were as follows: (1) isolation of arguments (see Alasuutari & Qadir, 2019) reflecting the strategic use of scientific knowledge in the MSP pilot; (2) analysis of actors' appeals to the authority of laws and research; (3) location of sections of data that were thick in terms of the research topic and appeals to authority (laws and research) and (4) rhetorical analysis of actors' arguments to reveal discursive patterns.

During the first phase, we isolated parts of the entire dataset in which actors referred to the newfound knowledge about marine areas, including the results of the Finnish Inventory Programme for the Underwater Marine Environment (VELMU) and the Transboundary Tools for the Spatial Planning and Conservation of the Gulf of Finland (TOPCONS) project. Both programmes produced information, data and tools that were at least partially applied during the Council's planning process.

To isolate parts of the data in which new knowledge was discussed, we used automatic and manual search methods. The automatic search included the following keywords: 'VELMU', 'TOPCONS', 'knowledge base', 'research base', 'knowledge' and 'research'. This search yielded 152 references in 15 files. However, some references did not fall within the scope of our research; thus, we narrowed them down manually. For example, discussions related to topics other than environmental planning were excluded. The focus of analysis then pointed to actors' justifications for using environmental knowledge in planning. After two turns of isolation, we maintained 45 references in nine files.

During the second phase of analysis, we sought all references to laws, studies and reports and coded them according to the type of authority to which the actors appealed when justifying their arguments. This produced an operationalised description of epistemic governance reflecting appeals to the epistemic capital of different types of authority (Table 1). We found that laws and research were both employed by various authorities.

During the third phase of analysis, we searched for the thickest parts of the data in terms of references to different types of epistemic capital and any overlaps thereof. We also used NVivo's matrix tool to compare overlapping references to laws and research in our data sample (Table 2). Hence, we narrowed the data to 21 references in seven files.

During the fourth phase of analysis, we progressed from rhetorical coding to identifying discursive patterns in the data. To this end, we analysed the legitimisation of arguments related to the planning knowledge base by investigating how actors used different techniques of epistemic governance while resisting or suggesting certain kinds of knowledge or their use. Therefore, we interpreted the data again, sought discourses leveraged by actors and analysed how they were supported by the moral and ontological authority of laws and research. In the following section, we present these discourses and the weight of their epistemic governance.

Results

Epistemic governance analytics reveal how discursive meaning-making is institutionally bounded. While speaking about ontologies, norms and identifications, actors often refer to institutions of law and scientific knowledge. The given framework suggests that during argumentation, institutions hold authoritative power; hence, referring to them proffers epistemic capital that can be accumulated and used to convince others. Following this premise, three discursive patterns emerged from the data: (1) new knowledge about marine areas supports safeguarding nature values, (2) producing and using new knowledge is important when balancing interests and (3) new knowledge is uncertain, and precaution should be applied (Table 3). Our analysis demonstrates how three specific discourses generated by new knowledge from our case study are characterised by a specific kind of epistemic governance to reveal how actors employed institutions of law and research as authorities. We will also pay attention to how the meaning of 'nature value' is interpreted and legitimated. In the following subsections, we present discourse excerpts and examine how they were shaped and epistemically governed.

New knowledge about marine areas supports safeguarding nature values

In the analysed planning documents, new knowledge was regarded as a valuable resource for safeguarding of nature values in marine areas. The strategy used by actors to legitimise their discourse included appealing to laws or other norms as sources of moral authority to identify 'good', 'desirable' or 'valuable' activities and results. While invoking laws, actors also referred to issues that, in terms of epistemic governance, comprise an *ontology of the environment*. In the data, references to this ontology comprised issues that are usually

Table 1. Appeals to the epistemic capital of different types of authority.

	Authority	Meaning attributed to the authority in the data	
Law or other commonly accepted norm (excluding norms for evidence-based planning)	Capacity-based authority	• commitment	
	Charisma as an authority	• charisma of a person interpreting the law	
	Moral authority	good – what the norm sees as good	• what is valuable • which is acceptable • what is desirable • which is mandatory
	Ontological authority	• which is not a suitable area for use • what is valuable • what is special	
Research	Capacity-based authority	• uncertainty prevents commissioning	
	Charisma as an authority	• charisma of a researcher/research institute	
	Moral authority	good – what is the value of a study or survey	• the solution is based on a study • the survey helps to identify • the report is taken into account • the limits of the information must be taken into account • utilising research is valuable • research promotes good • research shows good
		good – what kind of study or research is good	• coverage of the study vs. incompleteness
		good – what kind of information is good	• data reliability • adequacy of information • depth of knowledge
		desirable – what should be done	• the assessment needs to be supplemented or updated • information should be taken into account • no additional information is required • information required • add information
	Ontological authority	Perception of the situation considered acceptable	• which could possibly be true • which is true • what the truth is made of • as for the information • data security • support for own argument with data reference

Table 2. Overlapping references to research and laws.

		Research			
		Capacity-based authority	Charisma as an authority	Moral authority	Ontological authority
Law or other commonly accepted norm (excluding norm for evidence-based planning)	Capacity-based authority	–	–	–	1
	Charisma as an authority	–	–	–	1
	Moral authority	1	1	13	9
	Ontological authority	2	3	10	7

Table 3. Discourses legitimising using or not using new knowledge.

Discourses	Epistemic governance	Discursive elements	Advocates	Meanings supporting nature conservation institutions
New knowledge about marine areas supports safeguarding nature values	Invoking laws as a moral and ontological authority to *know what is valuable*; new knowledge about marine areas provides information on this	Nature's value, specificities, habitats, species, preconditions, inventory, sufficiency of knowledge	Planners	Maintaining nature conservation institutions
Producing and using new knowledge is important when balancing interests	Simultaneously invoking the norm for evidence-based planning and political guidance for maritime planning	Reconciling, win–win, benefits, solutions	Planners, researchers	Respecting nature conservation institutions while seeking opportunities for natural resource use
New knowledge is uncertain, and precaution should be applied	Invoking the moral authority of the precautionary principle and capacity-based authority while making references to the incompleteness of knowledge	Risk, precaution, uncertainties, excluding natural resource use	Initiators: State administrative officials, environmental organisations Reactors: Planners Verifiers: Researchers	Defending nature conservation institutions from breaking down

the subjects of scientific discoveries (e.g. seabed features, species and habitats) or methods (e.g. collecting and inventorying samples). In some cases, these references explicitly mentioned research projects and reports, whereas other examples were implicit, as they noted observations that required the use of the scientific method. Additionally, actors who legitimised new knowledge as a resource for carrying out activities of safeguarding nature values spoke of nature value and the importance of habitats as things that exist in nature that can be identified according to specific objective criteria.

While analysing the language used when referring to value, we found that the category of value often carries both moral and ontological meanings. The ontological meaning was often articulated using value-based criteria and by referencing scientific reports and discoveries for validation. Moreover, the concept of nature value, which has also a legal aspect, was frequently used to conceal moral content.

The forthcoming excerpt from the draft plan shows how a discourse of new knowledge supporting protection was created and how it was epistemically grounded. Planners appealed to the EU's Habitats Directive and ontological authority to legitimise their arguments for activities safeguarding nature values. Planners also wrote that the directive 'identified certain habitats as valuable'. This indicates that the directive had a dual function in the epistemic governance of value discourses: it was employed not only as a moral authority that indicates what is acceptable but also as an ontological authority that defines and institutionalises the definition of value as it pertains to habitats. Together, the moral and ontological aspects of value regulated via the Habitats Directive imply a set of standards for values that can be tested using the scientific method. Planners explicitly referred to the TOPCONS research and development project with which they had cooperated during its planning phases. However, the source of knowledge was seldom explicitly mentioned:

> The Ulko-Tammio–Haapasaari area represents the central archipelago. The site is significant/important for biodiversity and has an exceptionally diverse topography. The seabed of the area is characterised by rugged and small features, with higher rocky areas and clay/mud basins. This diversity is likely to have an impact on the area's biota and flora. In the Ulko-Tammio–Haapasaari area, there are hard seabed environments where representative and rare marine habitats may occur. These include underwater habitats identified as valuable in the Habitats Directive, such as reefs and underwater extensions of islands and islands in the outer archipelago. In the TOPCONS project, seabed samples taken from this central archipelago area represent a wide range of soil types, ranging from excavated bottoms to mud. (Planners, Plan Proposal, p. 67)

As seen in the next excerpt, planners employed the same strategy without making explicit references to regulations, norms, research studies or reports. However, the excerpt includes several references to nature conservation regulations, indicating the use of the same strategy used in the first excerpt. In the forthcoming excerpt, planners use the word 'find' to articulate knowledge about what is considered the most valuable species' habitats. The excerpt refers to efforts made to determine locations where conservation measures could or should be taken. The new knowledge was generated by recent research projects. In addition to the concept of 'value', the text also includes several other concepts used in law. The Finnish Nature Conservation Act implements the Habitats Directive and regulates the conservation of 'species and habitats' to which the planners referred. 'Species in need of special protection' refers to threatened species listed in the Finnish Nature Conservation Decree (160/1997, Annex 4). The list consists of threatened species that are obviously at risk of extinction (79/1996 Government Bill to Parliament). This risk was assessed using specific assessment criteria applied to the Red List of Finnish Species, which is the main knowledge base for collecting new information on Finnish species (Hyvärinen et al., 2019). References to the 'preservation of underwater diversity' reflect political aims that are regulated according to the Habitats Directive and the Finnish Nature Conservation Act. Moreover, LUBA requires safeguarding natural environments and nature values. Thus, the next excerpt represents a combination of references to Nature Conservation Decree and Nature Conservation Act as well as to new knowledge which was used to create a discourse of nature conservation.

> During planning, efforts have been made to find the most valuable areas in terms of species and habitats and the locations of species in need of special protection. By protecting the most valuable areas and guiding pressures on the use [of natural resources], the preservation of underwater diversity can be ensured. (Planners, Plan Proposal, p. 126)

New knowledge was not only leveraged as a source of ontological authority and a means to support nature conservation, but owing to its connection to legal principles, it was also assumed to restrict and control other activities that could threaten nature values. The next excerpt exemplifies the use of a legitimisation strategy like that used in the examples above but with one key difference: it justifies the use of new knowledge in terms of how it enables controls and boundary-setting conditions for land-use modes other than 'protection'. Using the propositional syntax, *results […] [which] make it possible […] to control*, planners highlighted how knowledge enables the controlled use of natural resources. Conversely, this implied to most in attendance that without knowledge, controlled use (hence sustainment) would not be possible. The argument carried with it a strong moral compulsion that relied on the authority of sustainability research, which LUBA both embodies and promotes, and nature conservation norms governed by various regulations. The passage also illustrates how moral authority (showing what is desirable) and ontological authority (defining legitimate criteria for valuation) are coupled:

> Knowledge of underwater nature is becoming more and more accurate. However, the above-mentioned surveys and inventories have made it possible to identify and designate the most valuable underwater areas and zones in terms of species and habitats with the generality required by the regional plan. The results also make it possible to control other land use in the area and set boundary conditions for the sustainable use of the marine area. (Planners, Plan Proposal, p. 37)

Producing and using new knowledge is important when balancing interests

Early in the planning process, the official planning documents conveyed an image of maritime planning that, despite involving conflicting interests of nature conservation and the use of natural resources, could reconcile the disparity by facilitating a planning process built upon knowledge and proven methods. The results of

Finnish Inventory Programme for the Underwater Marine Environment (VELMU; Finland's Environmental Administration, 2020) had recently improved the knowledge base; therefore, advocates of this discourse invoked the new knowledge to attempt to resolve conflict. Advocates included planners who were officially responsible for writing official documents. However, we found that this discourse was also present in the documentation of the preparatory discussions between planners and researchers. The strategy employed by advocates while substantiating their arguments involved simultaneously invoking norms of evidence-based planning and political guidance for maritime planning.

The forthcoming excerpt provides an example of how the objectives of the MSP pilot and the norms of evidence-based planning were coupled while supporting the idea of reconciling different (sometimes opposing) interests. In this excerpt, the VELMU is introduced by using a direct citation from the objectives of the VELMU programme without a reference. The text presents VELMU as a research project focusing on ecological features and variables of underwater marine areas. The planners presented VELMU as an ontological authority of information that can be analysed using the scientific method. Interestingly, apart from citing VELMU's objectives, VELMU is also invoked in the forthcoming excerpt as a moral authority in terms of promoting the safeguarding of nature values and supporting sustainability. Thus, it is a means of balancing conflicting interests. This indicates that VELMU data are considered to represent solutions to policy problems, as the ideal of evidence-based planning suggests. At the end of the excerpt, planners refer to 'national and international agreements' and employ them as another source of moral authority:

> The Finnish Inventory Programme for the Underwater Marine Environment (VELMU) collects data on the occurrence of underwater marine biotopes, species and communities in Finland's marine areas. The programme contributes to Baltic Sea biodiversity and marine conservation and to the sustainable use of the sea and its natural resources. Finland is committed to complying with several national and international agreements related to conservation and the sustainable planning of the marine areas. Examples include the Finnish Baltic Sea Action Programme (2002) and HELCOM's Baltic Sea Action Plan, which was adopted in November 2007. In April 2004, the International Maritime Organisation … designated the Baltic Sea as a Particularly Sensitive Sea Area … (Planners, Participation and Assessment Scheme, p. 12)

The new knowledge produced by VELMU was used in the context of ecology and as an apolitical inventory; however, several references to different political objectives revealed both implicit and explicit political motivations behind its use.

New knowledge is uncertain, and precaution should be applied

The third discourse emphasised the uncertainty of new knowledge and the moral responsibility of prudence, as knowledge is always incomplete. This discourse differed from the others in two ways. First, although it was generated by new knowledge, it was also a reaction to previous discussions about soil-dumping in marine areas, which can harm marine life. Therefore, the discourse was presented in the form of criticisms of the proposed plan. Second, it was initiated by stakeholders and the regional state administrative authority, the Centre for Economic Development, Transport and the Environment (ELY Centre), which commented on the draft plan. As mentioned, planners are required to listen to stakeholders' opinions, which often result in lobbying activities. In their responses to criticism, planners responded with comments representing also the third discourse. In a letter from the Geological Survey of Finland – a governmental geoscience research agency – the researchers verified that the corrections made to the plan were valid.

The discourse emphasising risks and uncertainties of new knowledge was characterised by moral arguments suggesting that decisions should not only be made while relying on incomplete knowledge, but that political judgement should also be used. This argument was supported by appeals to the moral authority of the precautionary principle and to the capacity-based authority of a regional state administrative authority who anticipated the need to review the plan again later if precautions were not taken. This discourse was also justified with references to nature conservation regulations.

The forthcoming excerpt exemplifies how an environmental non-governmental organisation (ENGO) created a discourse that highlighted risks. In a letter commenting on the Participation and Assessment Scheme (PAS) of the plan, the ENGO representatives criticised the PAS for presenting unconvincing

justifications for the sufficiency of the plan's knowledge base. In the text, the ENGO noted deficiencies in the PAS regarding how it addressed supplementing studies and improving knowledge. The ENGO accused the PAS of being 'vague' when addressing the process, emphasising that, in practice, the process of acquiring new knowledge is slow and continuous. Its incompleteness and the process of improving it reflect a persistent scientific dilemma. Thus, in the ENGO's argument, references to the incompleteness of knowledge preclude others from ever defining criteria for truth. Hence, the ENGO asserted that decisions must be made according to moral and political considerations. At the end of the excerpt, the ENGO refers to the precautionary principle and nature conservation as two political principles that both represent the moral authority of the law.

> The paper vaguely states that 'nature studies are being supplemented'. In practice, this happens very slowly. Similarly, the information produced in nature surveys becomes obsolete and must be updated, even after a couple of years. Knowledge of underwater nature is so far quite limited. The present [PAS] does not provide an answer to the question of how to increase knowledge. If there is insufficient information as a basis for planning, the emphasised precautionary principle must be observed. This is particularly important when the conservation situation of underwater nature is so weak. (ENGO, Statement of the Finnish Association for Nature Conservation Kymenlaakso District to the PAS, p. 1)

The capacity of knowledge to substantiate planning decisions is also questioned in the next excerpt. In a statement from the ELY Centre, state administrative officials wrote that, because of knowledge gaps, planning will be made under uncertain circumstances. Accordingly, officials warned that plans may become outdated. The state administrative authority did not refer to scientific understanding while convincing others of the existence of risk:

> It is great that the Regional Council of Kymenlaakso has been a pioneer in planning the use of marine areas and has designated underwater protected sites in the plan. However, with regard to marine life, knowledge and explanations are still so incomplete that additional valuable sites may be found, so it is good to be prepared for the fact that the plan may need to be revised. (ELY Centre, Statement of the ELY Centre to the Draft Plan, p. 4)

The risk discourse was not designed to criticise the link between laws and nature inventories, which the two other discourses sought to institutionalise. Instead, it suggested a new political approach concerning the limitations of nature inventories and their capacity to produce legitimate knowledge.

Discussion

In this paper, we approached the politics of knowledge use as epistemic governance and aimed to unpack the idea of the strategic use of knowledge in land-use planning and reveal its institutional bounds. With an empirical focus on knowledge disputes generated by piloting an MSP in Finland, we asked how actors legitimised the use of new knowledge about marine areas. Our analysis focused on kinds of discourse generated by this knowledge use. Thus, our study contributes to the literature on planning as governance that occurs through persuasion.

First, we determined that, while legitimising the use of new knowledge of marine life, actors invoked law and science by adopting several intermingled discursive meanings from both institutions. The epistemic governance framework (Alasuutari & Qadir, 2019) suggests that laws are typically seen as moral authority governing commonly accepted principles and norms. Similarly, science typically implies an ontological authority, with its method of creating a credible picture of reality (Alasuutari, 2018). Our analysis revealed that, when the actors in the case study defended the authority of extant nature conservation institutions, they were compelled to refer to the law while legitimising values both morally and empirically. A rationality was thus constructed in which law represented absolute informational authority legitimising nature (e.g. marine life) value as a rigid and unnegotiable fact. Additionally, the VELMU Marine Biodiversity Inventory carried both ontological and moral authority as it represented biodiversity as both a fact and a value. We thus interpret that, while legitimising the use of knowledge, the actors were playing with the meanings derived from institutions of science and law to enhance their epistemic capital. Hence, the debate on knowledge use resulted in a hybrid techno-legal rationality that enmeshed and blurred traditional boundaries between institutions of science and law as authorities, thus enabling a legitimate hybrid mandate comprising both knowledge and judgement.

As demonstrated by Flyvbjerg (1998, pp. 225–236) connections between power and knowledge affect the dynamics of planning. Our results support this by illuminating an institutional structure and the social mechanics of persuasion used to construct a techno-legal rationality that both constrains and enables change (see Schmidt, 2012). In line with Lennon and Scott (2015) we interpreted that techno-legal rationality represents institutional support for the expertise capable of presenting valid knowledge. Granting institutions of law and science various levels of authority also deters debate and promotes agreement during the statutory process (Rydin et al., 2018). This entails risks related to excluding certain types of non-authoritative knowledge by not opening the black-box decision processes (Rydin et al., 2018).

Second, whereas our first finding showed how the epistemic governance of knowledge use sedimented and depoliticised nature value into tangible measures within a risk discourse, the more technical debate remained politicised as it debated whether the new knowledge was sufficiently certain for guiding activities that could potentially threaten nature or businesses. Rydin et al. (2018) suggested that uncertainties could end up as sealed in black-boxes of evidence that turn discussions away from the process of knowledge generation so that the discussion will instead focus on results. Specific strategies, such as those of invoking expert authority (e.g. using signed agreements and expert testimony), are used when overcoming knowledge-related doubts (Rydin et al., 2018). Our findings support those of Rydin et al. (2018) and reveal an attempt to close a debate by invoking the charismatic authority of an expert and the moral authority of a precautionary principle while also handling doubts about the certainty of new knowledge. Furthermore, the case shows how knowledge use is assessed against the institutional appropriateness of knowledge (Dewulf et al., 2020). Using marine inventory data to guide soil dumping is politically significant and dangerous because it threatens the aims of a nature conservation institution. Hence, we argue that in a situation where knowledge is scarce, it is institutionally appropriate to apply a precautionary principle and politicise doubts regarding the sufficiency of the evidence base.

Our analysis revealed also that, with the epistemic governance of knowledge use, the actors referred to different authorities by creatively combining and intermingling their meanings. According to Alasuutari (2018), this strategy aims to accumulate epistemic capital so that all necessary audiences can be convinced. Moreover, our results showed that, while constructing a rationale supporting a nature conservation institution and legitimising knowledge use, actors manipulated epistemologies and the discursive meanings of various institutions. Previous research has shown how situational expertise is used during planning processes to exclude other types of knowledge (Lennon & Scott, 2015; Rydin et al., 2018). Our findings support conclusions made by Lennon and Scott (2015), who suggested that governance systems institutionalise a legitimate interpretation of reality so that issues fitting epistemological and ontological premises of their institutionalised rationality can be more easily adopted and accommodated in the decision-making process. This idea spurs debate over the 'fitness for purpose' of a governance system (Lennon & Scott, 2015) and the appropriateness of knowledge. Furthermore, we add to the conclusion of Lennon and Scott (2015) on the deployment of techno-rational discourses in planning debates by suggesting that in a regulative planning context, there is an institutional demand for techno-legal rationality, which invites enmeshing ontological and moral authorities. Moreover, in a situation where knowledge is uncertain, we suggest that the lack of legitimate ontological authority allows space for more political yet institutionally fit-for-purpose interpretations of reality.

When planning for change, our findings suggest that the politics of knowledge use lead to institutional stability, in which institutional authority is maintained discursively by passively normalising activities that are acceptable or appropriate (Galik & Chelbi, 2021). It deserves further attention in future research whether this hinders potential for change to which planning ultimately aims for. For future research, it will be important to determine the types of marginalising structures that exist in current planning regimes in terms of legitimate rationality and knowledge, as well as how their structures constrain or enable planning under extant environmental and societal constructs. It will also be relevant to expand the current analysis and explore the politics of knowledge use in different regulatory contexts to understand how the legitimacy of knowledge use is discursively supported or opposed and how the potential for social change unfolds in this context.

Finally, our analysis showed that legitimate knowledge use is an implementation of power and an essential part of the politics of planning. Accordingly, power deserves to be analysed and unpacked beyond the idea of

strategic knowledge use to influence planning processes and outcomes. The neo-institutionalist analytics of epistemic governance also have interesting potential for such studies, owing to their applicability in analysing deliberative decision-making.

Notes

1. The amendment to LUBA (482/2016) concerning MSP was adopted in June 2016.
2. LUBA requires that 'safeguarding nature values' during regional planning (§27). Concept of 'nature values' has also connection to the Nature Conservation Act (1096/1996) which aims protecting nature values.

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