The anatomy of plausible futures in policy processes: Comparing the cases of data protection and comprehensive security

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ABSTRACT

Due to rapid change and wicked policy problems, anticipatory policymaking is increasingly important. In addition to methods for producing foresight knowledge, tools are needed to make sense of the increasing amounts of future-oriented argumentation. This article presents a comparative analysis of anticipatory argumentation in two fields: the EU data protection reform and the Finnish concept for comprehensive security. A three-layer heuristic framework is presented for qualitative analysis of statements on plausible futures. The first layer consists of specific expectations regarding the future. The second layer is the generic anticipatory storyline. The third layer consists of the underlying futures consciousness. The data protection case presents an institutional reform narrative with short time perspective and relatively high agency, while the comprehensive security case presents a crisis narrative based on a contingency planning orientation with long time perspective, relatively developed systems perception and relatively low agency. In policy foresight with high uncertainty and high aspirations of agency, reflexivity and ethical responsibility are crucial components of foresight. This article promotes these by providing a tool for structuring anticipatory assumptions. The tool can be used for studying policy documents or during the policy process to craft more rigorous future-oriented policies.

1. Introduction

Consideration of possible, probable, preferable and plausible futures is increasingly important in policymaking and governance of societal issues. Different types of policy planning have been conducted for centuries, but the increasing pace of change, complexity of wicked policy problems and development of foresight methods have intensified policymakers' interest in the future in recent decades. Policy processes are dealing with futures in various ways, ranging from implicit anticipation to explicit foresight work. Since the future can be influenced by present policies and action, the future cannot be simply empirically studied as a basis for evidence-based policy. The ideal of building 'policy-free' scenarios for wind-tunnelling policies has been shown to be problematic and rarely practiced in pure form (van Asselt et al., 2014). Because policy both influences the future and makes use of anticipatory argumentation, understanding and developing future orientation in policy processes requires a more reflexive 'second-order' approach which acknowledges the presence of the decision-maker (Hodgson, 2017; Miller, 2007).

The public policy context brings certain characteristics to foresight, and there is a rich literature on policy foresight and scenario planning. In particular, the combination of relatively high agency and complexity make policy foresight different from single-actor foresight processes exploring uncertainties of the actor's contextual environment. Since policymakers typically have a great deal of influence in the issues of interest, they tend to use foresight to proactively pursue certain aims or to co-ordinate and align the activities of multiple actors (Hughes, 2013). Uncertainty of the future and factors beyond the influence of policymakers are nevertheless key challenges, and thus path-shaping and adaptation must be combined to develop robust policy strategies (Eriksson and Weber, 2008). There is a long tradition of conducting risk assessment and management to support policymaking. However, traditional quantitative and probabilistic risk assessment and management which view risks as calculable and controllable are seen as problematic in the face of surprise events, emerging risks and deep 'Knightian' uncertainty (Groves, 2009; Jore et al., 2018; Ramírez and Selin, 2014). This irreducible uncertainty is a justification for conducting foresight in addition to risk assessment.

The policy landscape is also complex, consisting of complex societal issues, numerous strategies at different levels, competing objectives and societal interests, compartmentalised government structures, and different time horizons and foci of attention for different actors (Habegger, 2010; Volkery and Ribeiro, 2009). Foresight may play direct or indirect decision support roles at different stages in the policy cycle, and it can contribute to policymaking by informing policy and by driving social learning processes among policymakers (Habegger, 2010; Kharrazi and

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Kakuwa, 2017). The need for more rigorous and reflexive foresight has been recognised, and evaluation of foresight is a rising topic in scholarship and practice (e.g. Amanatidou, 2014; Georghiou and Keenan, 2006). Many methods, approaches and guidelines have also been proposed for dealing with complexity and for crafting successful policy-relevant scenarios (Habegger, 2010; Hughes, 2013; Kharrazi and Kakuwa, 2017; Miller, 2007; Pang, 2010; Riddell et al., 2018; Wilkinson et al., 2013).

In addition to foresight impact evaluation and novel methods for producing rigorous foresight, it is equally important to structure and make sense of the anticipatory assumptions that are used in anticipatory processes, because the prevailing mindset in an anticipatory system is a powerful leverage point for promoting desirable changes (Hughes, 2013; Meadows, 1999). Understanding and influencing the mindset entails studying the anticipatory nature of the policy process itself in addition to evaluating the use of methodologies or the attainment of specific goals. In this broad sense, anticipation does not only include explicit foresight processes but also more broadly the future orientation utilised in policymaking. In policy processes, futures are 'used' in different ways to make sense of present possibilities (Miller, 2011). It is important to differentiate anticipatory assumptions as an object of study from both the substantive content of foresight (what is said about the future) and the foresight methods that are used (e.g. Delphi, scenarios). There are several existing frameworks for studying anticipatory assumptions. In the context of making scenarios, the Oxford scenario planning approach builds on the intuitive logics tradition and emphasises the investigation and reframing of assumptions (Inayatullah and Milojević, 2015; Ramírez and Wilkinson, 2016). Causal layered analysis presents a specific structuring of anticipatory assumptions into litany, system, worldview and myth/metaphor (Inayatullah and Milojević, 2015, p. 201). In the policy context, Michał Miedziński presents a multi-layered policy narrative framework analysis (POLiFRAME) which draws on causal layered analysis and connects policymakers' storylines with their underlying theory of change, and identifies perceived deficiencies, problems, scenarios and visions in the narratives (Miedziński, 2018). Christopher Groves, in turn, studies energy infrastructure planning and distinguishes between three analytical levels of anticipation: specific representations of futures, future imaginaries (narratives, frames) and future horizons or styles of anticipation (Groves, 2017). Finally, Ann Mische analyses future projections through a set of 'dimensions of projectivity' which include aspects of cognition, action orientation and the mode or genre of projectivity (Mische, 2009; Mische, 2014).

There are thus promising frameworks for examining the structure, or the 'anatomy', of statements on plausible futures in policy processes. However, the existing approaches seem to combine heterogeneous elements under the same list. For instance, causal layered analysis may combine general worldviews and beliefs about causality with specific beliefs about a phenomenon and its future trajectory (Inayatullah and Milojević, 2015). The policy narrative framework analysis presents an additional dimension related to policymakers' theories of change (Miedziński, 2018), but likewise the generic and specific elements of projections are conflated. The dimensions of projectivity, in turn, include different kinds of elements related to the foresight actor and the form and content of the future projection, and moreover the analysis is conducted at the level of specific grammatical features (Mische, 2014). While the aforementioned approaches are flexible and useful for their intended purposes, an added dimension could help by explicitly distinguishing, for instance, generic and specific beliefs as well as the form and content of future projections. At the same time, a suggested framework should be as simple as possible to permit use as a sensemaking device in interactive workshops, for instance (Weick et al., 2005). The analytical levels of anticipation are a useful starting point, as a distinction is made between different kind of elements: specific representations, generic imaginaries and styles of anticipation (Groves, 2017). However, for investigating policy futures, the framework could

benefit from a more streamlined approach outlining different uses of anticipation in policymaking rather than the sociological approach of exploring the 'technological unconscious' and 'environmental unconscious'.

This article presents a novel framework for structuring anticipatory assumptions using two cases as illustration: the EU data protection reform and foresight work related to the Finnish concept for comprehensive security.[1] The cases are different in their regional scope, timing and role of foresight, and therefore may seem incomparable. These differences are explored further in the 'Research material' section. The cases are selected precisely because they represent such different types of 'using the future' in policymaking, and therefore the suggested framework would need to accommodate such differences. In this paper, the focus is on *plausible* futures because plausibility draws attention to the social process of arguing, convincing and coordinating subjective ideas about the future rather than the objective possibility or probability of specific future states (van der Helm, 2006; cf. Tavory and Eliasoph, 2013). The following sections present an analytical dissection of key documents in these processes into three layers: specific expectations, generic storylines and futures consciousness, followed by discussion emphasising the importance of reflexivity and ethical responsibility in anticipation.

2. Material and methods

2.1. Research material

Foresight needs to be understood in its strategic and policy context (Georghiou and Keenan, 2006). Anticipatory activities are often focused around a deliberately constructed strategic object such as a program or project (Dufva and Ahlqvist, 2015). Both cases here are centred on a policy document. In the data protection case, the document is the General Data Protection Regulation which became enforceable on 25 May 2018 (European Union, 2016). In the comprehensive security case, the document is Finland's updated Security Strategy for Society (The Security Committee, 2017). However, the documents relate to the studied anticipatory processes in different ways: in the data protection case, anticipation happened *before* drafting the regulation, whereas in the comprehensive security case, the foresight partly *derives* from the principles laid out in the strategy.

As material for investigating anticipatory argumentation in the data protection reform, two communications from the European Commission are considered: 'A comprehensive approach on personal data protection in the European Union' (European Commission, 2010) and 'Safeguarding privacy in a connected world: A European data protection framework for the 21st century' (European Commission, 2012a). The communications were drafted in the context of a reform process which began with a 2009 stakeholder conference followed by a public consultation on the legal framework. The 'comprehensive approach' communication was followed by another public consultation, which in turn was followed by the 'safeguarding privacy' communication. In 2012, the Commission proposed the General Data Protection Regulation, which started a string of meetings of the European Council and intensive lobbying by interest groups. The European Parliament debated and amended the GDPR in March 2014 and voted clearly in its favour. After this the process stalled and it took until June 2015 for the European Council to adopt a general approach. The Trilogue negotiation between the EU institutions followed, and in December an agreement was reached.

The data protection reform was a significant policy process because it opened the 1995 Data Protection Directive and the entire EU

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[1] Data protection and comprehensive security are linked in various ways, but for the sake of clarity, these cases are discussed as separate anticipatory cases and the links between the phenomena are not examined.

protection framework to consideration of alternative futures, and the resulting framework established in the General Data Protection Regulation is likely to endure for decades. In the broader picture, the data protection reform is significant because privacy protection is a key 21st century challenge, as we are entering the era of widespread big data analytics, surveillance, recurring data breaches and algorithmic decision-making while there is considerable uncertainty about the future of democratic freedoms in the new technological context (e.g. Austin, 2015; Yeung, 2017). Because the policymaker's perspective is under study here, the focus is on the Commission's communications rather than the intensive stakeholder lobbying process. I have analysed the two public consultations conducted during the reform process elsewhere (Minkkinen, 2018).

The analysis of the Finnish comprehensive security case, in turn, focuses on the 'Government's common drivers for change' report (Prime Minister's Office, 2017), interpreted in light of comprehensive security and particularly energy and food security.[2] The report is based on foresight work in 12 Finnish ministries, and the common drivers report outlines 15 drivers for change which are shared across the ministries. While all of the drivers are relevant to comprehensive security understood broadly, from the resource security perspective, four of them are particularly important: "climate change", "state of the environment", "sustainability of natural resource use" and "reliability of critical infrastructure". The drivers for change were summarised as 'cards' which probe Finland's expected future until the 2030s and they were used as a basis for the ministries' future outlooks (Prime Minister's Office, 2017).

The concept for comprehensive security (*kokonaisturvallisuus* in Finnish, literally 'whole security') is a Finnish administrative concept which derives from a 2012 government resolution, although in Finland the broadening of the concept of security intensified in the post-Cold War context of the 1990s and dates back even further (Lonka, 2016, p. 85). Even though Finland is a small European country, the Finnish case is worth examining because Finland is often considered as a positive example of utilising long-term thinking and strategic planning in government (Joyce, 2015, p. 35), and government foresight is relatively established in Finland with institutional features such as the national foresight approach, the National Foresight Network and periodical future outlooks by ministries.

The official definition of comprehensive security is a state of affairs where threats and risks to society's vital functions have been prepared for (Sanastokeskus, 2017, own translation). The seven vital functions are 1) leadership, 2) international and EU activities, 3) defence capability, 4) internal security, 5) economy, infrastructure and security of supply, 6) functional capacity of the population and services and 7) psychological resilience. Each of the vital functions includes specific strategic tasks of administrative branches with one or more ministries in charge. While this article focuses on the Finnish case of comprehensive security, similar developments are happening in the protection of critical infrastructures at the EU level, guided by the European Programme for Critical Infrastructure Protection (European Commission, 2016). Critical infrastructures can also be linked to cybersecurity and data security; however this is beyond the scope of this article.

Essentially, the concept for comprehensive security means a co-operation model between public authorities, businesses and NGOs to create preparedness across society (The Security Committee, 2017, p. 5). Preparedness is based on risk assessments which make use of threat scenarios (The Security Committee, 2017, p. 25). Compared to previous comprehensive security strategies, the latest Security Strategy for Society explicitly mentions foresight, proactivity, scenarios and maintaining anticipatory capabilities as parts of the preparedness work (The

Security Committee, 2017, pp. 9–10, 25; see Fig. 1). However, the foresight approach on comprehensive security is still taking shape at the time of writing. Since 2017, a comprehensive security expert foresight process has been conducted. However, instead of the expert-driven process, the 'Common drivers for change' report stemming from the ministries' foresight efforts is chosen in this article because it is more closely linked to the policymaker perspective and policymakers' future orientation. Moreover, at the time of writing, the comprehensive security foresight is set to explicitly become a part of the national foresight approach, which indicates a strengthening link between comprehensive security and national foresight.

These cases are different from each other in three key respects. Firstly, the data protection reform has already finished, while the Finnish comprehensive security processes are currently ongoing. Secondly, the data protection case is on the EU level while the comprehensive security case is on the national level. Finally, the data protection reform did not include explicit foresight, while the comprehensive security case includes explicit foresight components. Even though the cases are different, they are united in their comprehensive scope (comprehensive security and the European Commission's comprehensive approach to data protection) and, more importantly, their use of the future in policymaking. While the notion of comprehensiveness is common to the processes, there is no explicit definition of 'comprehensive' in either case. Based on the documents, in both cases 'comprehensive' means consideration of multiple interrelated aspects of the system relevant to the phenomenon and their links rather than selecting a few narrowly defined variables. In practice, the scope must of course be limited in some way. The actual comprehensiveness of the cases will be discussed in the 'Results and discussion' section under systems perception.

2.2. Methods

The aim of this paper is to propose a structure to make sense of statements on plausible futures and underlying assumptions, using two different cases as illustration. This section will outline the methodological approach to comparing the cases. Theoretically, the approach is rooted in the notion of anticipatory systems, that is, systems which use a model of the future in directing their actions in the present (Louie, 2010). Anticipation in these systems takes place in numerous ways, including symbolic/abstract representations of futures and more practical anticipation which may be embedded in structures (Poli, 2017). Of course, using a model of the future to direct actions is nothing new. This approach is already present in scientific hypotheses and predictions and risk assessment practices. Generally, it is a characteristic of the modern way of thinking that the future can be influenced. In this sense modern and possibly also pre-modern societies exhibit some form of 'futures consciousness' (Ahvenharju et al., 2018). What is new about the anticipatory systems approach is the acknowledgment of the ubiquity of anticipatory processes, from trees losing their leaves to policy planning, and the aspiration to rigorously study the feedback loop from imagined futures to present orientations and actions which influence the emerging future (Poli, 2017).

Anticipatory processes and expectations about the future always contain specific assumptions regarding the nature of time, agency, systemic connections, the nature of change and many other aspects (Bell and Mau, 1971; Inayatullah, 1998). Future projections are always coloured by the cognitive schemes of anticipating agents (Dufva and Ahlqvist, 2015). More generally, objectivity, value-freedom and the theory-ladenness of facts are traditional epistemological issues in the social sciences (Reiss and Sprenger, 2017), but they are particularly crucial for future-oriented inquiry because the future does not yet exist and statements about the future must rely on imagination, calculation or expectations of continuity. Because foresight contains embedded assumptions, rigorous foresight thus requires understanding the anticipating agent's existing assumptions and taking a reflexive, 'second-

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[2] This focus derives from the Winland strategic research project which explores future energy and food security in Finland ("From Failand to Winland," 2018).

PREPAREDNESS PROCESS

Fig. 1. The preparedness process (The Security Committee, 2017, p. 9).

order' approach to anticipation (Hodgson, 2017; Miller, 2007). Some anticipatory assumptions are specific to a phenomenon under study, such as data protection, and can be articulated for instance through conceptual metaphors for that phenomenon (Inayatullah, 1998). However, recent accounts of anticipation have suggested more generic types of assumptions and orientations towards the future that apply across different phenomena (Anderson, 2010; Miller, 2011; Miller et al., 2018).

Making sense of anticipatory processes in general is challenging because anticipation takes many different forms at different levels from individuals to transnational decision-making. In this article, I propose a heuristic three-layer structure for making sense of anticipatory assumptions across diverse cases in the policy context. The structure is illustrated in Fig. 2. The structure is similar to the analytical levels of anticipation outlined by Groves (2017) but reframed to suit the policy foresight context. The first layer consists of the explicit statements about the future, what is expected to happen, similar to the litany layer of causal layered analysis (Inayatullah, 1998). Crucially, expectations are performative, that is, they do something rather than merely describing a future reality (van Lente, 2012). Specific expectations are based on the second layer, generic storylines or scenario archetypes. Different authors have identified somewhat differing archetypes (Boschetti et al., 2016; Dator, 1979; Hunt et al., 2012; MacDonald,

2012), but the general types are similar across studies: eco-crisis, social crisis, techno-optimism, power and economic inequality, institutional reforms, local focus, and technological or social transformation narratives (Boschetti et al., 2016). MacDonald (2012) argues further that archetypal stories correspond to modes of literary narrative such as epics and tragedies. Generic storylines occupy the middle ground between specific expectations and the general features of the futures consciousness. The latter is explained in the following paragraphs. Arguably storylines are always to some extent local in time and space. Because of their undifferentiated nature, they often implicitly concern certain geographical regions within a certain time horizon, that is, the *where* and *when* of the future.

The third and final layer consists of the futures consciousness that underlies the expectations and storylines. The term 'futures consciousness' is used rather than 'future orientation', 'basic anticipatory assumptions' or some other term because it implies a more subjective relationship to the future which encompasses more than only future-oriented cognition. Crucially, it is not fruitful to consider futures consciousness as consciousness *of* particular developments because they do not yet exist, but rather it must be conceived as more open and plural, as an internalised relationship to the future and sense of future possibilities. When discussing futures consciousness as shared rather than an individual characteristic, it can be characterised as a cultural fact (Appadurai, 2013). Based on a literature review on futures consciousness and related terms such as 'future orientation' and 'prospective attitude', five general dimensions of futures consciousness have been identified:

1) Time perspective: length of time horizon, time orientation;
2) Agency beliefs: assumptions about being able to influence the future;
3) Openness to alternatives: consideration of alternative futures, dealing with uncertainty;
4) Systems perception: perceiving systemic interconnectedness;
5) Concern for others: ethical consideration of the futures of others beyond one's own reference group (Ahvenharju et al., 2018).

The five dimensions are the constituent parts of futures consciousness. They are similar to the dimensions of projectivity (Mische, 2009), but more homogeneous in the sense that they concern aspects of an actor's relationship to the future rather than including the genre and the cognitive contours of the projection itself. The futures consciousness dimensions are conceptually linked to aspects of sustainability, responsibility and care for the future in the face of uncertainty, rapid change and global social and environmental challenges (Groves, 2009; Vervoort and Gupta, 2018). Nevertheless, the dimensions themselves are intended to be as generic as possible and applicable to many different contexts, not only ecological sustainability, for instance.
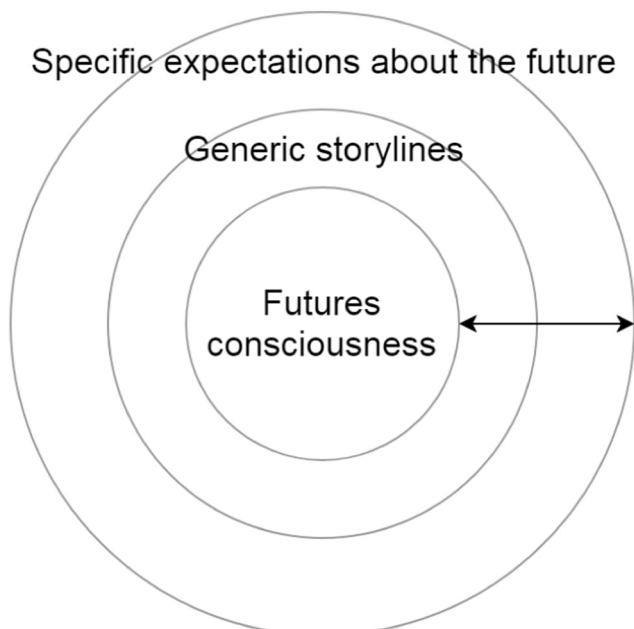

Fig. 2. Three layers of anticipation.

Moreover, the five dimensions are not a guarantee of sustainability or ethical rightness.

To supplement these constituent parts, we can consider the orientation that these dimensions together constitute in a specific case. This notion, in turn, is similar to the concept of future horizons or styles of anticipation, which crucially does not concern the specific content of projections (Groves, 2017). Anticipatory processes may be oriented to the future in different ways. In the anticipation literature, three generic ways of explicitly using the future have been identified: 1) optimisation/planning (imposing today's vision on the future based on closed anticipatory assumptions and extrapolation), 2) contingency/preparation (preparing for anticipated surprises) and 3) novelty (making sense of and discovering differences which are unknowable in advance) (Miller, 2015; Miller et al., 2018). Contingency may be further divided into precaution, pre-emption and preparedness, which entail different strategies for coping with contingency. In precautionary approaches, preventive action is taken before a threat becomes irreversible, in pre-emption a more active, even transformational, role is taken before a threat has even emerged, and in preparedness the undesired future is not prevented but society is resilient in its aftermath (Anderson, 2010). Importantly, the optimisation and contingency planning approaches in all their variations are dependent on previous experience and historical data, making the future a continuation of current aspirations or trends. This is problematic in the context of emerging novel phenomena (Jore et al., 2018). In contrast, the novelty approach focuses on making sense of emergent difference in the present, in effect bracketing out the possibility of knowing the future and instead discovering current potential for creating something new (Miller et al., 2018). This third approach can be seen as an elevation of the perspectives of complexity, uncertainty and openness inherent in foresight and scenario planning.

3. Results and discussion

In this section, the data protection and comprehensive security cases are analysed based on the frameworks presented in the previous section. The key expectations and the anticipatory assumptions in the two cases are summarised in Table 1.

3.1. Generic storylines

The data protection case presents a storyline focusing on institutional and policy reforms primarily within Europe with a relatively short time frame. This kind of narrative represents a largely conventional and optimistic view of the future, where strong policy push is successful in creating positive development in the economy and society (Hunt et al., 2012). It may be characterised as an intent variant of a progress narrative, which describes policy change to promote more or less linear progress and corresponds to the epic mode in literary narratives (MacDonald, 2012). There are also aspirations of spreading EU data protection principles globally, which imply a kind of hero role for Europe in the broader narrative. In the comprehensive security case, in turn, the predominant storyline in the 'Common drivers' report is the threat of global eco-crisis and social crisis with a time frame until 2030 (Boschetti et al., 2016), caused by climate change, competition for scarce natural resources, biodiversity loss and risks connected to development of technologies, primarily artificial intelligence. The potential crisis is global but the focus is on consequences for Finland. This is a pre-apocalyptic orientation which leaves the resolution of the narrative ambiguous (Hall, 2016).[3] Depending the response to the drivers, the ultimate resolution may be catastrophe, reversion or transformation (Boschetti et al., 2016; MacDonald, 2012). Comparing the two cases, the data protection case presents a 'secondary' narrative where

policymakers have actively responded to pressures, while the 'Common drivers' report presents a 'primary' narrative which only indicates the driving forces and pressures which will require policymakers' attention (cf. de Jouvenel, 1967, p. 55). To some extent, the ministries' future outlooks that followed the 'Common drivers' report provided a policy response or a secondary narrative, albeit a more short-term and localised one considering the scope of the challenges.

3.2. Futures consciousness

In the data protection case, the focus is on challenges in the present and the near past with limited explicit consideration of futures. This is expressed in the frequent use of the present perfect tense: "The rapid pace of technological change and globalisation have profoundly transformed the way in which an ever-increasing volume of personal data is collected, accessed, used and transferred." (European Commission, 2012a, p. 2). Overall, there is a sense of disruption: technologies and globalisation have changed the data economy and regulation must follow. However, from the futures perspective, the crucial question is what kind of changes may still be ahead, and this more speculative question is left unaddressed. In contrast, in the comprehensive security case, the time horizon is relatively long, reaching to the year 2030. There is also a sense of disruption, but located in the future. However, the long time horizon is arguably not fully expressed in the descriptions of futures, which remain rather close to what is already happening in the present.

The European Commission clearly demonstrates a sense of agency in carrying out the data protection reform. During the reform, an impact assessment was conducted comparing three policy options: minimal amendment and policy support measures, separate legislative provisions, and centralisation of data protection at EU level (European Commission, 2012b, p. 4). These options constitute different levels of intervention into the future of data protection. However, agency in this case is largely reactive, reforming regulation due to recent societal changes. In the comprehensive security case, by contrast, agency is limited as the focus is on driving forces in the external environment, and the Finnish Government's agency is mostly discussed in terms of pressures to act due to the drivers.

In terms of openness to alternatives, there is a strong sense of path-dependency in the data protection case. The 1995 Data Protection Directive is described as a milestone (European Commission, 2010, p. 2, European Commission, 2012a, p. 2) and its principles continue to be valid. The Commission argues for regulatory stability in the context of rapid changes. However, the process is also framed as a "fundamental reform" while maintaining central data protection principles (European Commission, 2012a, p. 3). In practice, openness to alternatives is limited: three policy options are considered, as described above, and the operating environment is described in rather deterministic terms, as the progress of technologies and globalisation. In the comprehensive security case, the 'Common drivers for change' report presents an expected future for the year 2030 for each driver followed by three or four alternative futures, mostly indicating more positive and more negative alternatives to the expected future (Prime Minister's Office, 2017). Both the expected future and the alternatives have been developed by public officials, facilitated by a professional futures researcher. While the consideration of alternatives is positive, the 'official future' is strongly emphasised and presented as a kind of 'normal future', which is problematic. Secondly, the alternatives are generally presented as variations on the trend, lower or higher than the expected future, rather than genuinely different futures (Miller, 2007).

In the data protection case, systems perception is primarily demonstrated by the awareness of complex global flows of data in contemporary economy and society. Data protection is seen as an element in a complex system. In addition, the policy options in the reform's impact assessment were considered in light of three policy objectives: improving the internal market dimension of data protection, making

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[3] As Hall (2016) states, 'apocalypse' means 'disclosure' in the ancient Greek, and the disclosure is left open in the crisis narratives.

Table 1
Summary of the cases according to the three layers of anticipation.

	Data protection case	Comprehensive security case
Specific expectations about the future	"rapid technological developments and globalisation have profoundly changed the world around us, and brought new challenges for the protection of personal data." (European Commission, 2010, p. 2) "Like technology, the way our personal data is used and shared in our society is changing all the time. The challenge this poses to legislators is to establish a legislative framework that will stand the test of time. At the end of the reform process, Europe's data protection rules should continue to guarantee a high level of protection and provide legal certainty to individuals, public administrations and businesses in the internal market alike for several generations." (European Commission, 2010, p. 18) "The new EU Regulation will ensure a robust protection of the fundamental right to data protection throughout the European Union and strengthen the functioning of the Single Market." (European Commission, 2012a, p. 9) "This will allow the EU to remain a driving force in promoting high data protection standards worldwide." (European Commission, 2010, p. 5)	"Climate change will be a game changer": extreme weather conditions, new species, changes in water cycle and water quality, changes in farming and forestry, higher levels of immigration (Prime Minister's Office, 2017, pp. 12, 49) "The environment and nature will be vulnerable, and competition for natural resources will escalate." (Prime Minister's Office, 2017, p. 12) Biodiversity loss is a significant threat to stability of societies (Prime Minister's Office, 2017, p. 52) "The development of the digital economy and a hyper-connected operating environment will create increasing pressures to manage and safeguard society's functions. New phenomena, including artificial intelligence, robotisation, digitalisation, virtual communities and cyber technologies will also enable and challenge the reliability of vital functions and critical infrastructure." (Prime Minister's Office, 2017, p. 46) "The Industrial Internet and robotisation will be an increasingly important part of vital societal functions and critical infrastructure. […] Artificial intelligence is a key factor in controlling the vulnerabilities of critical infrastructure. It also has a central role in managing society's internal and external security" (Prime Minister's Office, 2017, p. 46)
Generic storylines	Institutional reforms, intentional policy change primarily within Europe	(Threat of) global eco-crisis and social crisis, focus on consequences for Finland
Futures consciousness dimensions		
- Time perspective	Focus on the present and the recent past, sense of disruption	Long time horizon (2030), sense of disruption
- Agency beliefs	Regulators as active agents, orientation is reactive	Powerful driving forces, limited agency
- Openness to alternatives	Strong path-dependency in regulation, three policy options	Expected future and alternatives
- Systems perception	Complex flows of data in contemporary society, impact assessment of policy options, otherwise limited systemic consideration	Arranged into systemic drivers but no analysis of causal links between drivers
- Concern for others	Strengthening fundamental rights within the EU, spreading EU data protection principles globally	Focus on the survival of Finland in the context of great changes, global responsibility for climate
Way of using the future	Planning/optimisation	Contingency planning/preparation

the exercise of data protection rights more effective and creating a comprehensive and coherent framework. In addition, the economic and social impacts and effects on fundamental rights were considered, but environmental impacts were not considered (European Commission, 2012b, p. 4). Overall, the consideration of systemic linkages is limited considering that data protection concerns almost all aspects of society, and it is "hard to find areas of human endeavour that it does not concern" (Kuner, 2013). The 'Common drivers' report, in turn, presents drivers which are broad phenomena. The drivers are categorised according to the PESTE method (political, economic, social, technological and ecological), while acknowledging that many phenomena cut across society (Prime Minister's Office, 2017, p. 6). The drivers are also shared among the ministries, at least in principle, so they should cut across administrative silos.[4] The report thus acknowledges broad systemic connections. However, systemic linkages between the drivers are not explored, which leaves the drivers somewhat separate. In addition, presenting the drivers as a list of equally important phenomena may distort their potential hierarchy and systemic connections. For instance, climate change may justifiably be seen as a megatrend that influences all the other drivers, while "Digital capabilities in public administration" is a much more local concern. In both the data protection and comprehensive security cases, an integration of drivers into scenarios could have enhanced the consideration of systemic interdependencies.

Finally, in terms of concern for others, one of the aims of the EU data protection reform was strengthening fundamental rights of all EU citizens, and the promotion of high data protection standards worldwide was also a prominent theme (European Commission, 2010, pp. 4–5). The reform thus has an explicit ethical component, although it is continuously balanced with the objective of promoting the single

market and the free flow of data (European Commission, 2012a, p. 4). The comprehensive security case, in turn, focuses on the survival of Finland in the context of great changes, thus the context is largely national. However, there are also indications of global responsibility for mitigating climate change.

The data protection case represents a planning and optimisation orientation to the future, aiming at 'future-proofing' data protection through strong regulation and enforcement, while in the comprehensive security case, the predominant orientation is preparation and contingency planning in the face of future threats.

3.3. Discussion: anticipatory capabilities, reflexivity and responsible anticipation

The different ways of using the future largely stem from the different functions of the documents: the 'Common drivers' report presents questions to be answered by policy, while the Commission's communications present proposals for answers. In the comprehensive security case, the orientation of contingency planning and preparation is self-evident, since the concept for comprehensive security is defined as a cooperation model to increase preparedness in the face of threats to society's vital functions. Nevertheless, it is important to note that preparedness is a particular kind of anticipatory logic which aims at resilience in the face of uncertain threats rather than preventing negative events from taking place (Anderson, 2010). The prominence of climate change as a threat with wide systemic implications challenges this contingency planning approach. Can society prepare for threats related to climate change without tackling the roots of anthropogenic climate change, which in turn could benefit from more visionary and explorative anticipatory approaches?

The continuous development of anticipatory capabilities, mentioned by the Security Strategy for Society (The Security Committee, 2017, p. 25), is clearly needed. A key challenge is finding ways of tackling the

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[4] The future outlooks of the Finnish ministries, published in June 2018, are in principle based on the common drivers, but in practice different ministries integrated the common drivers to a different extent and in different ways.

inevitable uncertainty related to the future. In contemporary anticipatory action, uncertainty is seen as the root of both promise and threat, and therefore the challenge is to embrace it while securing against its negative consequences (Anderson, 2010, p. 782). One necessary component in anticipatory capabilities is awareness of anticipatory assumptions and futures consciousness, which allows policymakers to use the future in a more conscious and reflexive manner, that is, to be futures literate (Miller, 2007). Using the future can be viewed as a skill which can be learned in order to use the future more effectively and, equally importantly, in more responsible and ethically sustainable ways. In certain contexts, an optimising orientation is appropriate, while other contexts benefit from a contingency approach or exploration of novelty (Miller et al., 2018).

In the cases of data protection and comprehensive security, the anticipatory assumptions were largely implicit and unexamined, at least in the final published documents. For effective and ethically responsible anticipation, it is crucial to make these choices of assumptions consciously, carefully considering alternatives. In the cases considered here, the question is, firstly, whether a contingency or novelty approach would benefit the data protection reform and what it would entail for policymakers and, secondly, whether an optimising or even visionary approach or a novelty approach would benefit foresight for comprehensive security and what this would entail. The corollary of such consideration is responsibility in anticipation. For instance, in the comprehensive security case, is it irresponsible for a small country to confidently promote its own agency in a turbulent security environment? Considering energy and food security, to what extent can we promote visionary approaches and exploration of novelty when climate change adaption is still insufficient? What role could more radical transformation narratives have? Similar difficult questions may be asked about considering fundamental rights such as data protection. For instance, how to leave room for emergent qualitative change in the broader phenomenon of privacy and avoid imposing an overly rigid meaning to data protection which may actually make it complicit with increasing surveillance (Coll, 2014)? Reflexive anticipation entails considering these questions openly rather than falling back on implicit assumptions about the future.

In practice, policymakers could use the three-layer structure (specific expectations, generic storylines and futures consciousness) as a tool during the policy process to craft more rigorous future-oriented policies. An empty version of Table 1 could be used in a workshop either to investigate the anticipatory assumptions in specific draft policy or foresight texts, or to map the assumptions of participants in a more open-ended manner. This could be done, for instance, during a scenario process to investigate assumptions in driving forces, such as the 'Common drivers' report studied in this article, or in draft scenarios. For each layer, specific methods may also be used, such as causal layered analysis for deeper study of generic storylines or general workshop facilitation methods for eliciting views on the futures consciousness dimensions (Inayatullah and Milojević, 2015). The three-layer framework is intended to be simple enough for interactive workshop use but profound enough to permit detailed study if time permits. The benefit of using the framework is that policymakers ensure that they are telling the intended story about the future and that they 'tick all the boxes' regarding the futures consciousness dimensions, that is, they consider the future orientation of their policies broadly enough.

In more general terms, there are two key implications for foresight work. Firstly, foresight should be made in a way that acknowledges the impact of foresight on the world, both in factual and ethical terms. Sharpe, Hodgson and their colleagues differentiate reflexive modes of anticipation from forecasts, roadmaps and scenarios in terms of agency and uncertainty. In forecasts, both agency and uncertainty are low, in roadmaps there is high agency and relatively little uncertainty, while in scenarios uncertainty is acknowledged but agency is relatively low (Hodgson, 2017; Sharpe et al., 2016). Reflexive futures work is vital for policy foresight because the context combines high uncertainty with

high aspirations of agency. Secondly, there are several possible ways of conducting foresight, and the appropriate future orientation is always contextually dependent and also opens to question. Moreover, in the ideal case, different future orientations complement each other and form a coherent foresight system (cf. Dufva and Ahlqvist, 2015). For instance, in security foresight, contingency planning and preparedness may be complemented by a more visionary orientation focusing on the societal and cultural prerequisites of security such as high-quality education. In both cases, the futures expressed in the reports become part of the negotiation on plausible futures in the broader social system, influencing views on what data protection and comprehensive security could be in the future (van der Helm, 2006). They thus have the potential to shift the broader landscape of established assumptions about the future (Tavory and Eliasoph, 2013). The foresight impact literature can give insight on the effectiveness of explicit foresight efforts (Amanatidou, 2014; Georghiou and Keenan, 2006), but research is also needed on the general dynamics of future orientations and plausible future imaginaries across society.

4. Conclusions

This article presented tools to structure anticipatory argumentation which is continuously increasing both in quantity and importance for policy. Two cases, the EU data protection reform and the Finnish concept for comprehensive security, were compared in terms of their approach to the future and anticipatory assumptions. A heuristic three-layer structure of anticipation was presented linking explicit expectations, generic storylines and generic orientation to the future. In this framework, the data protection case represents an 'institutional reform' narrative based on an optimising orientation to the future. This approach is a short-term perspective with relatively high agency and limited openness to alternatives. The comprehensive security case, in turn, represents a narrative on the threat of eco-crisis and social crisis which is based on a contingency planning approach to the future. This approach exhibits a long time perspective and relatively strong systemic perception but low agency.

The aim of this paper is not to criticise these approaches but to enhance transparency and reflexivity regarding future orientation and the layers of assumptions that are used in anticipation in the context of policy processes. The structure presented in the article may be used either to study existing policy documents or for crafting more rigorous future-oriented policies, for instance in workshops during the policy process. The benefit of the latter approach is that policymakers can ensure that they are telling the intended story about the future and that they consider the future orientation of their policies broadly enough. The first step in developing competencies in using the future for policymaking is understanding current predominant ways of using the future and submitting them to debate. This allows learning to use the future more reflexively for policy. In the two cases presented here, the question is about developing anticipatory governance of data protection and comprehensive security, which requires questioning what kinds of anticipatory storylines and assumptions about time perspective, agency beliefs, openness, systemic thinking and ethical consideration enable effective and responsible foresight and policy.

Declarations of interest

None.

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