MAKING SENSE OF USING THE FUTURE: COMPARING THE CASES OF DATA PROTECTION AND COMPREHENSIVE SECURITY

Matti Minkkinen

Finland Futures Research Centre, University of Turku
Turku School of Economics
20014 University of Turku
Finland
matti.minkkinen@utu.fi

Abstract

Anticipatory governance is becoming increasingly important. The concept is already established in the field of emerging technologies but it is equally important when considering complex societal issues such as data protection and comprehensive security. Therefore policymakers need to develop their competencies in using the future in appropriate ways. In addition to developing methods for producing foresight knowledge, tools are needed to make sense of the increasing amount of future-oriented argumentation that is continuously produced.

This paper contributes to the theory and methodology of foresight by analysing anticipatory processes in two fields using an innovative combination of frameworks. The paper presents a comparison of two cases of using the future for policy: 1) the EU data protection reform and 2) the Finnish concept for comprehensive security. The data protection reform process led to the adoption of the General Data Protection Regulation which became enforceable in May 2018. The comprehensive security case, in turn, comes from an ongoing analysis of the role of foresight in the Finnish concept for comprehensive security. The Finnish concept for comprehensive security is a cooperation model between public authorities, businesses and NGOs to create preparedness. The two cases differ from each other in several ways, but we can make sense of the anticipatory assumptions in both cases using the same frameworks.

A three-layer heuristic framework is presented for qualitative analysis of anticipatory argumentation. The first layer consists of the specific expectations regarding the future. The second layer is the generic anticipatory storyline. The third layer consists of the generic orientation to the future (optimisation, contingency and novelty) and assumptions regarding five dimensions of futures consciousness (time perspective, agency beliefs, openness to alternatives, systems perception and concern for others). The data protection case presents an institutional reform narrative based on an optimising future orientation with short time perspective and relatively high agency. The comprehensive security case predominantly presents a crisis narrative based on a contingency planning orientation with long time perspective, relatively developed systems perception and relatively low agency.

The paper contributes towards more reflexive foresight by providing tools to structure and make sense of anticipatory argumentation which is continuously increasing both in quantity and importance for policy. The paper also contributes to the theory and methodology of foresight by exploring the links between anticipatory exercises, which attempt to understand what could happen in the future, and anticipatory assumptions relating to how futures are perceived.

Keywords: anticipation, data protection, comprehensive security

Introduction

Whether explicit foresight or more implicit anticipation, consideration of futures is increasingly important in the governance of complex societal issues. Since the future can be influenced by present policies and action, it cannot be simply empirically studied as a basis for evidence-based policy. Because policy influences the future and makes use of anticipatory argumentation, a more reflexive 'second-order' approach is necessary (Hodgson, 2017; Miller, 2007). This requires policymakers to develop their Futures Literacy, that is, their competencies in using the future in appropriate ways.

This need for improving foresight has been recognised, and evaluation of foresight is a rising topic in scholarship and practice (e.g. Amanatidou, 2014; Georghiou & Keenan, 2006). In addition to impact-based evaluation, it is equally important to structure and make sense of the assumptions that are behind anticipatory processes. This means studying the anticipatory process itself rather than evaluating the attainment of specific goals. In this paper, the abstraction *using the future* denotes the general way in which futures are discussed and acted upon (Miller, 2011), differentiated from both the substantive content of foresight (what is said about the future) and the foresight methods that are used (e.g. Delphi, scenarios).

Sensemaking, the retrospective development of plausible images to rationalise people's actions, is an influential approach in organisation studies (Weick, Sutcliffe, & Obstfeld, 2005). In management literature, scenarios have been described as prospective sensemaking devices (Wright, 2005). However, this paper focuses on making sense *of* using the future, which may be seen as a complementary perspective to foresight *as* sensemaking. In this paper, making sense of using the future means analytically structuring and rationalising anticipatory activities.

This paper presents a framework for making sense of anticipatory assumptions using two cases as illustration: the EU data protection reform and foresight work related to the Finnish concept for comprehensive security.[1] Foresight needs to be situated in a strategic and policy context (Georghiou & Keenan, 2006), and 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). For the sake of clarity, the focus here is on the Commission's communications rather than the stakeholder lobbying process. I have analysed the two public consultations conducted during the reform process elsewhere (Minkkinen, under review).

The analysis of the Finnish comprehensive security case, in turn, focuses on the 'Government's common drivers of change' report (Prime Minister's Office, 2017), interpreted in light of compre-

[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.

hensive security and particularly energy and food security.[2] The report is based on foresight work in 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 are summarised as 'cards' which probe Finland's future until the 2030s (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 dates back to at least the 1990s and the post-Cold War context (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. 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 TSK, 2017, own translation). Essentially, the concept for comprehensive security means a cooperation 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).

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.

Methodological approach

The aim of this paper is to propose a structure to make sense of anticipatory argumentation in policymaking, 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, and this paper investigates two particular instances of using the future.

[2] This focus derives from the Winland strategic research project which explores future energy and food security in Finland ("From Failand to Winland," 2018). Note that the 'common drivers of change' report is not explicitly linked to comprehensive security in the document text. The full picture of Finnish comprehensive security foresight is more complex and it is under study in the Winland project at the time of writing.

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 & Mau, 1971; Inayatullah, 1998). Future projections are always coloured by the cognitive schemes of anticipating agents (Dufva & Ahlqvist, 2015). Rigorous foresight thus requires understanding the anticipating agent's existing assumptions and taking a reflexive, 'second-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 raised the question of more generic types of assumptions and orientations towards the future that apply across different phenomena (Anderson, 2010; Miller, 2011; Miller, Poli, & Rossel, 2018).

Making sense of anticipatory processes in general is challenging because anticipation takes many different forms. In this paper, I propose a heuristic three-layer structure for making sense of anticipatory assumptions across diverse cases. The structure is illustrated in Fig. 1. 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, Price, & Walker, 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).

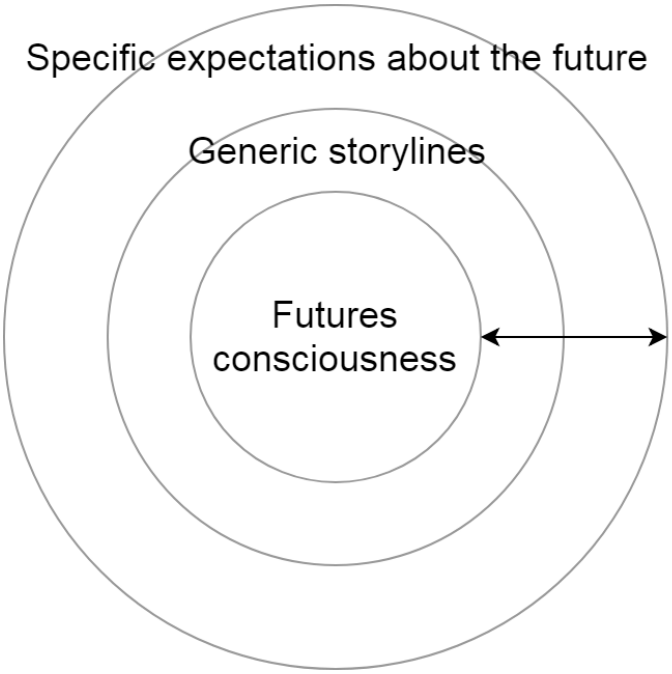

Fig. 1. Three layers of anticipation.

The third and final layer consists of the futures consciousness that underlies the expectations and storylines. Based on a literature review on futures consciousness and related terms such as

'future orientation' and 'prospective attitude', we have identified five general dimensions of futures consciousness:

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, Minkkinen, & Lalot, under review)

The five dimensions are the constituent parts of futures consciousness. On the other hand, we can consider the orientation that these dimensions together constitute in a specific case. 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 (Anderson, 2010).

Results, discussion and implications

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.

The data protection case presents a storyline focusing on institutional and policy reforms. This kind of narrative presents 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). In the comprehensive security case, in turn, the predominant storyline in the 'Common drivers' report is the threat of eco-crisis and social crisis, caused by climate change, competition for scarce natural resources, biodiversity loss and risks connected to development of technologies, primarily artificial intelligence. 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 (see de Jouvenel, 1967, p. 55).

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	(Threat of) eco-crisis and social crisis
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

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 transformations may still be ahead. 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, 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 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. The 'Common drivers' report, in turn presents drivers which are broad phenomena. The drivers are categorised accord-

ing 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.[3] 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 systemic connections. For instance, climate change may justifiably be seen as a megatrend that influences all the other drivers.

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 prominent (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. 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 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). In certain contexts, an optimising orientation is appropriate, while other contexts benefit from a contingency approach or exploration of novelty (Miller et al., 2018). For effective 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

[3] The future outlooks of the ministries are yet to be published at the time of writing. The outlooks will indicate the extent to which the common drivers are integrated into the foresight work of different ministries.

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 exaggerate 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. Reflexive anticipation entails considering these questions openly rather than falling back on implicit assumptions about the future.

Conclusions

This paper presented structuring tools to make sense of 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 regarding future orientation and the layers of assumptions that are used in anticipation. The first step in developing competencies in using the future is understanding our current 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 anticipation.

References

Ahvenharju, S., Minkkinen, M., & Lalot, F. (under review). The Five Dimensions of Futures Consciousness.

Amanatidou, E. (2014). Beyond the veil — The real value of Foresight. *Technological Forecasting and Social Change*, *87*, 274–291. https://doi.org/10.1016/j.techfore.2013.12.030

Anderson, B. (2010). Preemption, precaution, preparedness: Anticipatory action and future geographies. *Progress in Human Geography*, *34*(6), 777–798. https://doi.org/10.1177/0309132510362600

Bell, W., & Mau, J. A. (1971). Images of the future: theory and research strategies. In W. Bell & J. A. Mau (Eds.), *The Sociology of the Future; Theory, Cases, and Annotated Bibliography* (pp. 6–44). New York: Russell Sage Foundation.

Boschetti, F., Price, J., & Walker, I. (2016). Myths of the future and scenario archetypes. *Technological Forecasting and Social Change*, *111*, 76–85. https://doi.org/10.1016/j.techfore.2016.06.009

Dator, J. (1979). The futures of cultures or cultures of the future. In A. J. Marsella, R. G. Tharp, & T. J. Ciboroski (Eds.), *Perspectives on Cross-Cultural Psychology* (pp. 369–388). New York: Academic Press.

de Jouvenel, B. (1967). *The Art of Conjecture*. New York: Basic Books.

Dufva, M., & Ahlqvist, T. (2015). Elements in the construction of future-orientation: a systems view of foresight. *Futures*, *73*, 112–125. https://doi.org/10.1016/j.futures.2015.08.006

European Commission. (2010). COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS: A comprehensive approach on personal data protection in the European Union: COM(2010) 609 final.

European Commission. (2012a). COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Safeguarding Privacy in a Connected World A European Data Protection Framework for the 21st Century COM/2012/09 final.

European Commission. (2012b). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the protection of individuals with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation) COM/2012/011 final - 2012/0011 (COD).

European Union. (2016). *Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)*.

From Failand to Winland. (2018). Retrieved April 27, 2018, from http://winlandtutkimus.fi/english/

Georghiou, L., & Keenan, M. (2006). Evaluation of national foresight activities: Assessing rationale, process and impact. *Technological Forecasting and Social Change*, *73*(7), 761–777. https://doi.org/10.1016/j.techfore.2005.08.003

Hodgson, A. (2017). Reperceiving the Future. *World Futures Review*, *9*(4), 208–224. https://doi.org/10.1177/1946756717729511

Hunt, D. V. L., Lombardi, D. R., Atkinson, S., Barber, A. R. G., Barnes, M., Boyko, C. T., … Rogers, C. D. F. (2012). Scenario Archetypes: Converging Rather than Diverging Themes. *Sustainability*, *4*(12), 740–772. https://doi.org/10.3390/su4040740

Inayatullah, S. (1998). Causal layered analysis: poststructuralism as method. *Futures*, *30*(8), 815–829.

Joyce, P. (2015). *Strategic Management in the Public Sector* (1 edition). London: Routledge.

Lonka, H. (2016). *Valtioneuvoston turvallisuusstrategiatyö lainsäädännön muokkaajana*. Itä-Suomen yliopisto.

Louie, A. H. (2010). Robert Rosen's anticipatory systems. *Foresight*, *12*(3), 18–29. https://doi.org/10.1108/14636681011049848

MacDonald, N. (2012). Futures and culture. *Futures*, *44*(4), 277–291. https://doi.org/10.1016/j.futures.2011.10.011

Miller, R. (2007). Futures literacy: A hybrid strategic scenario method. *Futures*, *39*(4), 341–362. https://doi.org/10.1016/j.futures.2006.12.001

Miller, R. (2011). Being without existing: the futures community at a turning point? A comment on Jay Ogilvy's "Facing the fold." *Foresight*, *13*(4), 24–34. https://doi.org/10.1108/14636681111153940

Miller, R. (2015). Learning, the Future, and Complexity. An Essay on the Emergence of Futures Literacy. *European Journal of Education*, *50*(4), 513–523. https://doi.org/10.1111/ejed.12157

Miller, R., Poli, R., & Rossel, P. (2018). The discipline of anticipation: foundations for futures literacy. In R. Miller (Ed.), *Transforming the future: anticipation in the 21st century*. Abingdon, Oxon ; New York, NY: Routledge.

Minkkinen, M. (under review). Making the future by using the future: A study on influencing privacy protection rules through anticipatory storylines.

Prime Minister's Office. (2017). *The Government's common drivers for change*. Prime Minister's Office. Retrieved from http://julkaisut.valtioneuvosto.fi/handle/10024/160244

Sanastokeskus TSK. (2017). *Kokonaisturvallisuuden sanasto [Vocabulary of Comprehensive Security]*. Helsinki: Sanastokeskus TSK ry. Retrieved from http://www.tsk.fi/tiedostot/pdf/Kokonaisturvallisuuden_sanasto_2.pdf

The Security Committee. (2017). *Security Strategy for Society. Government Resolution*. The Security Committee. Retrieved from https://turvallisuuskomitea.fi/wp-content/uploads/2018/04/YTS_2017_english.pdf

van Lente, H. (2012). Navigating foresight in a sea of expectations: Lessons from the sociology of expectations. *Technology Analysis and Strategic Management*, *24*(8), 769–782. https://doi.org/10.1080/09537325.2012.715478

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the Process of Sensemaking. *Organization Science*, *16*(4), 409–421. https://doi.org/10.1287/orsc.1050.0133

Wright, A. (2005). The role of scenarios as prospective sensemaking devices. *Management Decision*, *43*(1), 86–101. https://doi.org/10.1108/00251740510572506