

# Towards a knowledge-based anticipatory governance? The institutionalisation of a more integrated evidence system

co-authored by

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## Introduction

The ongoing institutionalisation of science advisory systems reflect the evolving processes and roles of government, the academic community and experts/intermediaries in the science advice system. The system itself may be in flux, from a purely expert-driven process to a more integrated one, where expert advice and scientific evidence is in dialogue with more tacit forms of knowledge and more multifaceted and participatory processes of sense-making, involving increasingly also citizens in their multiple roles and through their various communities. We explore these change processes in the Finnish case to better understand the motivations and rationales of agents on all sides of the science-advice process (experts, scientists, policy-makers, knowledge brokers, and citizens). After describing and analysing some of the recent development in anticipatory governance, we go on to pose the question what would be the benefits of deeper institutionalisation and how and by whom could this institutionalisation be supported by.

Many current policy issues (from climate change to green transition and social sustainability) demand a sharper focus on the interfaces between knowledge production and policy-making, while the sustainability agenda in particular motivates us to source better anticipatory and future-aware practice. We perceive this as moving from a traditional linear knowledge-diffusion model towards a systems-driven one, based on a more future-oriented, anticipatory and ecosystems-based approach, where the role of support directed at individuals, institutions and systems relates to the nature of the engagement within the system as a whole, rather than to steps along the way or to nodes in a (policy) cycle (Hopkins *et al.* 2021).

The current institutional structures of modern science, such as the academic publishing system, career trajectories, departmental structures and the criteria for evaluation and funding often remain unsupportive of new modes of knowledge production. These new modes of knowledge production and mediation are however increasingly required to meet the needs of sustainability and green transition across various policy fields. The move from *informing* to *implementing* and finally to *(de)designing* has been ongoing for some time with the prevailing logics increasingly reflecting concerns over the shift from accountability to impact and further - perhaps - to future anticipation, co-creation and shared sense-making.

This emergent ecosystem-driven approach to science advice, where the knowledge provision, demand and the interfaces of diffusion are increasingly multifaceted and future-oriented provides the broader setting of '*anticipatory governance*'. In analysing this shift we focus on systemic trust

between government, evidence and knowledge, citizens, institutions and organisations while seeking to identify 'systems navigation' as the process by which the shift from expert-based science advice to a more systems and solution-based process, where more collaborative, shared and open sense-making processes allows all agents in a governance system to circumvent unnecessary hierarchies and sectoral barriers and in so doing, to arrive at more appropriate policy solutions in an increasingly complex policy environment.

The structure of the paper is as follows: **First**, we provide a brief introduction into anticipatory governance as a theoretical strand of thought within governance literature, relying in particular on the work done by University of Vaasa in the Steering2020 project in 2020. **Secondly**, we highlight the elements and characteristics of anticipatory governance as a response to complexity and systems thinking. **Thirdly**, we provide some illustrative examples of anticipatory governance from the Finnish government's approach to Covid-19 and Sanna Marin's government's attempts to renew decision-making. Finally, we assess the promise of anticipatory governance as a strand of thought within multi-level governance and more systems-driven approaches to evidence-informed policy-making and in particular assess the potential for its institutionalisation, as well as the risks of institutionalising highly adaptive governance approaches.

### **A brief introduction to anticipatory governance in the light of governance research literature**<sup>[1]</sup>

The many shifts and trends in management and governance literature are reflective of the changing patterns and under currents of public administration operating environment, and the way in which it has become more complex, with systems-thinking providing in many cases the best lenses to give at all realistic or relevant picture of what is going on in our government and public sectors steering. Amongst the many characteristics of change are for instance the degree of self-organisation and the need for mobilising various societal stakeholders (e.g. Bingham, Nabatchi and O'Leary 2005 and Schneider 2011; Bryson, Crosby & Bloomberg 2014; Orsini ym. 2019; Sørensen & Bentzen 2020; Bryson, Crosby & Bloomberg 2014; Torfing, Sørensen & Røiseland 2019; Sørensen & Bentzen 2020), as well as the shift in perceiving the role of citizen as an agent in its own right, rather than an object of policy and steering, reflecting at the same time a shift towards service-oriented thinking and changing role of the government towards a more facilitation-based model (e.g. Groeneveld & Van de Walle 2011; Bryson, Crosby & Bloomberg 2014; Sørensen & Bentzen 2020).

Importantly, as Vartiainen et al. (2020) show, these changes are not normatively and politically neutral, rather they reflect the shifts in what is valued in the public sphere, e.g. whether democratic ethos and values (e.g. openness, transparency, equal opportunity) are the primary focus or have been replaced by bureaucratic values (e.g. efficiency, expertise, speed) (e.g. Bryson, Crosby & Bloomberg 2014; Nabatchi 2010; Stoker 1998).

Multi-level governance has been seen as one way to describe and understand decision-making in an increasingly complex world (see e.g. Piattoni 2015; Campomori & Caponio 2017). The emergence of multi-level approaches has been accompanied by an increasing understanding that describing social decision-making as a linear process where power, direction and control rests with a certain central administration is in many ways misleading and insufficient. Rather there is such a multiplicity of actors and agents that no individual actor can be seen as having sufficient power to control, steer or

direct the entire system and its parts. (Cairney, Heikkilä & Wood 2019.) The concept of multi-level management has developed since the 1990s and has been applied especially in connection with research related to the European Union, but also within the constituent units within it (i.e. the spatial and regional patterns within each Member States, rather than only the governance between them. Parallel to the emergence of dominant MLG approaches, varieties and interpretations of governance have emerged, such as polycentric, hybrid or meta governance (Vartiainen et al. 2020 p. 16).

Complexity and complexity governance have increasingly emerged on the agenda in recent years, partly as a consequence of the varieties of multi-level governance proving to be insufficient in anticipating and explaining the failures, asymmetries and contradictory tensions in governance. Issues such as 'complexity gaps', referring to the imbalance in the levels of complexity between two (or more) interacting systems have been focussed on. The greater the level difference, the greater the risk of one or more systems collapsing. In this case, it is a certain kind of overload condition caused by complexity. (Casti 2013; Wilenius & Casti 2015.) This is related to the law of requisite variety, whose central message can be summed up in the sentence "only diversity can defeat diversity". This means that the actor should be at least as diverse as the phenomenon that the actor tries to control. (Ashby 2011; Goldstein 2011.) The development of complexity sciences has made it possible to modify Ashby's law into the law of requisite complexity. According to the law in question, the internal complexity of the system should correspond to the complexity of the system's operating environment. (Boisot & McKelvey 2011.) Two (meta-management) strategies are often highlighted in the literature, which seek to come to grips with the to some extent narrow the complexity gap described above (see e.g. Boisot & McKelvey 2011; Hämäläinen 2015; De Toni & De Zan 2016; Raisio & Vartiainen 2020). These are complexity reduction and complexity nurturing; or as Joosse and Teisman (2020) refer to them, 'simplification' and 'complification'.

Simplification refers to a process of rendering societal problems controllable and solvable. This manifests itself, for example, in the way that larger sets of problems are divided into more easily controllable and manageable groups of sub-problems; solution processes are separated into pre-defined steps that are seen to lead to pre-determined outcomes; and organizational structures are based on hierarchical structures and precisely defined job descriptions. Simplification is a strategy that is found in both classic public administration as well as in new public management. Complexity is in this approach seen as something that needs to be "solved", a harmful characteristic which should be reduced by administrative means. However, one key challenge is that this kind of simplification reduces the ability to adapt, in other words, the room for manoeuvre of social actors decreases and the ability to adapt to changing conditions decreases. (Joosse & Teisman 2020; see also Raisio, Jalonen & Uusikylä 2018; Raisio, Puustinen & Vartiainen 2020.)

The opposite approach of 'complification' perceives complexity as a positive thing (Castelnovo & Sorrentino 2018; Joosse & Teisman 2020) and one which reflects the reality of numerous actors and operations actively being identified and sought, even increased or expanded in order to better respond to the level of complexity of the problems and phenomena encountered. In complexity, the diversity of actors and operations is increased and, in addition, opportunities for non-mechanistic self-organizing modes of operation are opened up. This increases the room for manoeuvre and therefore the adaptability of the operators. (Joosse & Teisman 2020; see also Raisio, Jalonen &

Uusikylä 2018; Raisio, Puustinen & Vartiainen 2020.) As Vartiainen et al. (2020) usefully point out, the question of simplification and complication is not either-or, but rather both-and. It is worth noting that different phenomena and problems require different control mechanisms. For some of the problems encountered, for example, simplification can be a very suitable operating model. (see Kirschke et al. 2019; Joosse & Teisman 2020.) The relationship between simplification and complexity should then be seen as a kind of constant balancing act between the pursuit of control (strong control) and enabling self-organization (soft control) (see Grudniewicz et al. 2018; Raisio, Puustinen & Vartiainen 2020).

In this paper **anticipatory governance** is proposed as a means of coming to grips with complexity and especially addressing the temporal aspects of it, which necessitate not only ex ante or ex post knowledge gathering, assessment and evaluation, rather a constant balancing act of self-correcting the steering and governance as changes emerge and the system corrects itself.

### **Covid-19 as a case necessitating the emergence of more anticipatory approaches to governance**

When the Covid-19 pandemic hit the world, people's daily lives changed dramatically. It quickly became evident that public authorities all around the globe were facing considerable difficulties. The pandemic highlighted governmental shortcomings in implementing pre-disaster learning protocols, leaving them ill-equipped for such exigent circumstances. Despite some forewarning of a potential pandemic (e.g., Henig 2020; Daszak 2020), governmental and administrative preparedness for the cross-boundary repercussions of Covid-19 was markedly deficient (Bryce et al. 2020).

The governance challenges arising from the pandemic can be classified into four primary categories. **Firstly**, in the hyper-connected global context, the rapid international dissemination of Covid-19 exposed the inadequacies of national governance strategies predicated on sovereignty and jurisdiction. This highlighted the fragility of global governance institutions and the limitations of power and authority in managing pervasive emergencies (Brouselle et al. 2020; Levy 2021). **Secondly**, the pandemic-induced socio-economic upheavals tested the resilience of conventional governance structures and deepened existing inequalities. This led to protests, civil unrest, and the emergence of populist movements and conspiracies (Nicola et al. 2020; Haldane et al. 2021; Eberl et al. 2021). The third challenge related to the politicization of the pandemic, whereby political ideologies influence public discourse, decision-making, and the management of health emergencies, leading to divergent policy responses (Bobba & Hubé 2021; Ruisch et al. 2021). Media, with its particularly biased or even sensational coverage, played a substantial role in molding public opinion and spreading misinformation (Mian & Khan 2020; Choli & Kuss 2021). Finally, the pandemic underscored the pitfalls of relying exclusively on expert-driven policymaking. Policymakers, compelled to navigate unknown terrain with scant data and fluid conditions, often relied on expert advice. However, the unpredictable nature of the pandemic rendered expert guidance tentative, thus questioning the tenet of accountable politicians being well-informed (Salajan et al. 2020; Boin et al. 2020; Correia & Willis 2021).

The pandemic significantly impacted Finnish society, testing its healthcare resilience and placing businesses under significant strain due to societal lockdown measures. The crisis, impacting the population unevenly, prompted increased remote work and stimulated discourse around

governance issues such as centralization versus decentralization and the role of expert knowledge in decision-making. The success in combating the pandemic can be assessed from various perspectives. Unlike many countries, Finland did not experience strong dividing lines between different groups during the pandemic. It has been suggested that, despite many uncertainties related to the virus's behavior, the operational capacity of the health system, and the social and economic costs of restrictive measures, the open communication strategy adopted by the Government and health authorities was largely accepted and appreciated by both citizens and societal stakeholders alike (Lähteenmäki et al. 2021).

Despite Finland's relatively successful handling of the disease, doubts about government efficiency in rapidly changing conditions emerged among citizens. The fairness of lockdown measures and respect for fundamental rights were debated among experts and citizens, all within an environment fraught with widespread misinformation. Pandemic management did not follow typical crisis models, necessitating an improvised Covid-19 ministerial working group, primarily steered by the Ministry of Social Affairs and Health and the Finnish Institute for Health and Welfare. However, this approach resulted in the pandemic being viewed primarily as a health crisis, often neglecting broader societal and systemic impacts in decision-making. The knowledge base for decision-making was challenged during the pandemic's early stages, perceived as slow, and revealed gaps in key areas such as healthcare capacity. Initial mistrust persisted throughout the pandemic, and issues in cross-administrative information transmission continued. (Stenvall et al. 2022; Kihlström et al. 2023.) However, the situation improved in many respects as the pandemic progressed. Several blind spots in the knowledge base were addressed, and in some sectors, the administrative-specific knowledge base was ultimately perceived to be even more precise than in a normal situation. New methods were developed to gather fragmented information, such as research reviews commissioned by the Prime Minister's Office. For example, citizen dialogues were used to exchange experiences between decision-makers and citizens (Holkeri 2023).

Overall, decision-making in Finland during crisis periods can be characterized as “somewhat resilient”, as evidenced by experiences from the Covid-19 outbreak (Sorsa et al., 2023). The information basis for decision-making was strengthened during the pandemic and was even considered robust in some administrative sectors. However, comprehensive situational overviews were frequently absent from decision-making, complicating the management of the pandemic as a crisis that affected the entire society. Suitable actors, adequate resources, and foreseen methods for interpreting and coordinating the information from different administrative sectors into comprehensive situational overviews were lacking. Additionally, the utilization of citizen participation in decision-making and the capacity to coordinate information producers in crisis conditions were proven to be inadequate during the pandemic. In Finland, significant efforts have been made to prepare for future disruptions. Yet, there exists a risk that different actors and administrative sectors will prepare for future crises solely within the confines of their own organizations. The pandemic has demonstrated that preparation requires methods that consider the entirety of public administration.

Despite encountering issues related to centralization, expert knowledge, and trust in governance, Finland demonstrated some key features of adaptive governance. These included open communication, acknowledgment of and learning from initial limitations, improvements in the

knowledge base, and attempts at increased citizen engagement. Nevertheless, certain aspects of adaptive governance seemed lacking. Comprehensive situational awareness was often missing in decision-making, reflecting inadequate integration of information across administrative sectors. Citizen participation and information coordination in crisis conditions also proved deficient. These shortcomings point to the need for a more systemic, adaptive approach that extends beyond organizational confines to better manage complex crises.

### **Recent developments in anticipatory governance and evidence-informed decision-making | Finland<sup>[2]</sup>**

Perhaps the most interesting aspect of the Sanna Marin's government (2019-2023), in the eyes of social scientists, was the pledge made by the government to the citizens to the ways in which politics was done, the pledge to “reform politics” and public sector governance. This pledge was partly also implemented through the public sector renewal strategy ([Strategy for Public Governance Renewal \(publicgovernancestrategy.fi\)](https://publicgovernancestrategy.fi))

It could be argued that Finland is relatively well positioned to implement such a strategy, and build a societal policy built on trust. While Finland has long been profiled as a country of strong trust, which has been reflected also in various international rankings (e.g. WEF, Transparency International etc. [Finland among the best in the world | Statistics Finland](#)), reflecting the quality of governance, stability and trust within the country, there are also discordant chords. For example, the evaluation of the state of public trust by the OECD in cooperation with Finland (OECD 2021: Drivers of Trust in Public Institutions in Finland) was not exclusively positive in its results and interpretations, rather showing that among other things, that despite the high national average, citizens' trust in different institutions varies. There are also significant regional differences in Finland, and trust in public institutions and administration is weaker in rural areas, less educated and lower income households. This differentiation process has been studied in recent years (e.g. Anu Kantola & working group (2022): Finland of eight bubbles – Changes in society and deep stories) and for a reason — trust should not be taken for granted.

According to a survey carried out as part of the evaluation, 66% of citizens trust the state administration, 61% trust the government, 53% trust the parliament and 52% trust the local government. The report draws attention to regional and population group differences and reminds that if the development of the differentiation of trust deepens, it may also weaken cohesion and Finland's ability to cope with major social challenges, such as the challenges caused by the aging of the population, climate change, digitization and changes in work.

Perhaps the most significant message was contained in the so-called "Finnish paradox", which is particularly relevant in terms of participation and civil dialogue: although citizens' trust in public institutions and satisfaction with democracy are still at a high level, the share of people who believe they can influence political processes is small in Finland compared to other high countries of trust. The OECD emphasizes that cohesion cannot be preserved without action and that the possible marginalization of population groups should be combated in Finland by promoting a wider social dialogue. Even against this background, the promise to reform politics was welcome, and it was also very versatile and comprehensive at the beginning of the government's term. It included a promise of

the administration's continuous learning (e.g. foresight and experimentation), new types of interaction (e.g. better cross-sectoral collaboration and coordination, more empathetic governance and interaction), commitment to long-term policy (e.g. systematic cooperation between the Government and Parliament), data-based policy (e.g. systematic impact assessment in all law preparation) non-discrimination ( e.g. zero tolerance for bullying and racism) from intergenerational justice (e.g. child- and elderly-friendly society and 75% employment rate).

Other issues creating an increasing demand and pressure for more anticipatory governance and new forms of interaction include Agenda2030, sustainability goals and green transition requirements. The green transition has taken over the agenda of European politics some time ago, and in Finland too it has found its counterpart, alongside the "sustainable growth" that has already become a tradition or almost a mantra, social sustainability, which complements ecological and economic sustainability. In its mid-term meeting, the government also published a sustainability road map, in which the three dimensions of sustainability and their interdependence were strongly highlighted.

It is not easy to combine these different perspectives successfully under any circumstances, but it is undoubtedly especially challenging in a situation where the increase in the proportion of the elderly population, the deterioration of the economic situation and the turbulence of the operating environment put the traditional control mechanisms and the viability of our current system in front of completely new challenges.

Due to the exceptional uncertainty, the goal of the government's budget decisions is to create stability and respond to the acute needs required by the crisis. At the same time, the conditions for green transition investments and future sustainable growth are ensured. (Source: Prime Minister Sanna Marin's speech in the debate on the budget proposal on September 20, 2022).

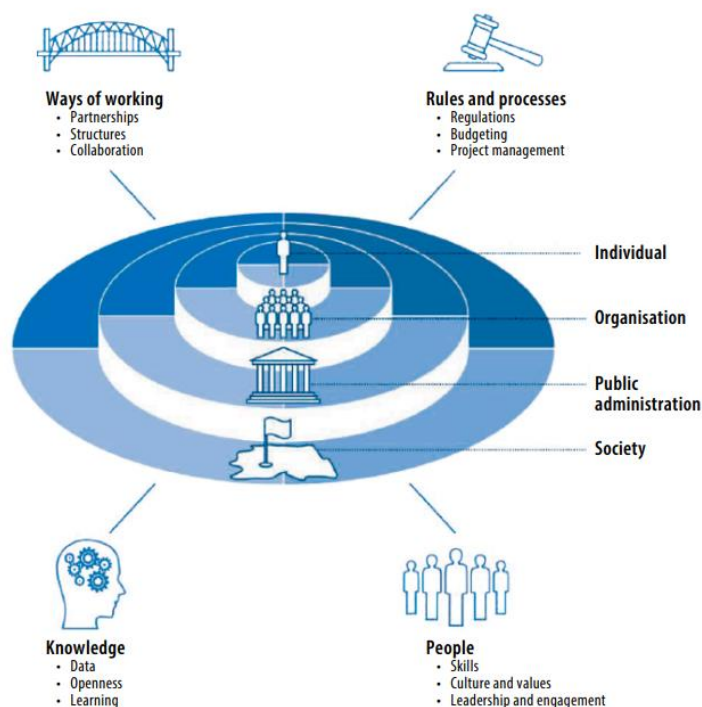
Some of the measures – such as skills and work ability, the development and introduction of new technology, as well as measures to support the green transition and measures to reduce marginalization – target investments that promote productivity and create new production and also get private investments moving. These have longer-term effects that increase economic production, productivity and employment. It is not possible to estimate the overall effects of these in advance. Because of this, the potential of policy entities for growth and the public economy may be greater than what can be estimated for them in advance. (Source: Government's sustainability road map, p. 48)

The double transition talked about in the European Union includes the idea of a winning combination of ecological sustainability and the interdependence of digital solutions. In the traditional Finnish thinking, largely dominated by pragmatic engineering thinking, relying on technical solutions even to many non-technical policy challenges, artificial intelligence and digital solutions have also been seen in a positive light, and Finland's position in international competition among the "winners" of the double transition (TEM 2021, 12). Recent studies have however also raised the issue of such technical solutions being insufficient and societal needs for knowledge and competence also having many contradictory and complex impacts, e.g. the need for new competencies accompanying the green transition having highly unequal and tension-creating and escalating impacts (e.g. Busk et al. 2023).

Collaborative efforts of governance and management of societal issues across disciplinary and administrative boundaries have been increasingly emerging. One such example is the *Helmi* programme of the Ministries of Environment and Agriculture and Forestry, which often respond to expectations in very different directions and at different paces, is a promising example of horizontal cooperation between ministries. The main goal of the programme is to strengthen Finland's natural diversity and improve the condition of habitats by protecting and restoring marshes, renovating and maintaining bird waters, traditional biotopes and forested habitats as well as small waters and coastal nature. The programme examines habitats and the restoration and maintenance measures they require as broad entities and as forms of cooperation that require the attention of several actors, ranging from The Centres for Economic Development, Transport and the Environment (the so-called ELY Centres), which are responsible for the regional implementation and development tasks of the central government; Forestry Finland, Finnish Environment Agency, Finnish Forestry Center, Finnish Game Centre, as well as local and regional authorities.

Systematic ex ante evaluation is still carried out only to a limited extent at the municipal level, and while national level evaluations are part of the administrative routine, the policy processes and legislative cycles seldom lend themselves to in time extensive evaluation. There are still quite large shortcomings in the evaluation of legislation, despite the effective and close-eyed supervision of the legislation evaluation council, which works diligently and persistently as a watchdog. Development is also taking place, and, for example, the retrospective evaluation of the effects of legislation has been more consistent during the Marin government period than before. The data base for the impact assessment of government proposals has been compiled more systematically than before, at least if the mid-term evaluation of the government's promises is to be believed.

**Figure 1: Levels of innovation activities and the operating environment (OECD)**





It is difficult to assess the continuous learning of management from outside the management, though there may be positive indications of learning. One of the factors is also the pressing need and urgency that drives change and innovation. According to an Innovation Barometer undertaken amongst civil service, key drivers for innovation are citizens' expectations, need to improve productivity and sustainability. (Ministry of Finance 2022: Innovation Barometer, p. 35, figure 16). Many of the competence development processes and interactive governance examples reflect a stronger commitment to ecosystem thinking and cross-sectoral and anticipatory approaches, some of which are related to the knowledge base for decision-making. Interaction with citizens has been supported in many ways, for example in the form of Timeout dialogues, corona era dialogues and various round table discussions.

One interesting recent development is the move from traditional systematic literature reviews to a more emergent and anticipatory knowledge base, where for instance researchers are interviewed, Delphi panels organised or other such results of more qualitative assessment compiled to accompany the literature reviews, when the knowledge base is not yet existing.

**Info Box 1: Some examples of knowledge production and innovative methods within anticipatory governance**

**From a more traditional research review towards a more anticipatory knowledge production?**

**1) COVID-19 study review by the Prime Minister's Office**

The purpose of the survey review was to compile the latest international research results related to the coronavirus pandemic for decision-makers in a concise and informative manner. The main target group of the review was the Government's draftspersons and political decision-makers, but the review was published openly, and anyone could join the distribution list. Especially at the beginning of the coronavirus pandemic, the situation was demanding also for knowledge production and dissemination: considerable research data was produced globally, and the demand for information among decision-makers and society as a whole was growing, whilst at the same time there were no aggregated procedures for screening research data in a meaningful way. The research review provided a comprehensive, multidisciplinary view of the latest research data on the coronavirus pandemic and the multidimensional impacts of the pandemic. It sought to support the creation of a situation picture and understanding of societal impacts. Website: <https://tietokayttoon.fi/covid-19-tutkimuskatsaukset>; <https://vnk.fi/hanke?tunnus=VNK095:00/2020>; Ministry of Finance 2022, p. 47.

**2) Finnish Academy of Science and Letters: Bending but not Breaking, – From the coronavirus pandemic to strengthening Finland's crisis resilience, Statement by a group of independent experts convened by the Finnish Academy of Science and Letters**

The output was not so much a review but an anticipatory statement on the need to collect and compile multidisciplinary knowledge and understanding of crises in at times of crises and before them. THE FINNISH ACADEMY OF SCIENCE AND LETTERS convened a group of experts consisting of ten experienced scientists who are academics of science and recent presidents of the Academy. They represent a wide range of disciplines and have in-depth experience of interdisciplinary collaboration and participation in societal debate. The group chaired by Anna Mauranen, the president of the Finnish Academy of Science and Letters worked from June 2020 to January 2021. [statement2021.pdf \(acadsci.fi\)](#)

**3) “Finland is changing” – a Review by the Finnish Academy of Science and Letters (2023): a qualitative knowledge compilation of what researchers currently know about the impacts of the Russian attack on the Ukraine on Finland. [Suomi muuttuu: tuore tietokooste arvioi Venäjän Ukrainaan kohdistaman hyökkäyssodan vaikutuksia - Tiedeakatemia \(acadsci.fi\)](#) (Currently only available in Finnish).**

Enthusiasts of public management and guidance have already been pleased that the Prime Minister's Office has started to publish the monitoring of the government program as an open situation review report. This is one dimension of knowledge-basedness that is important at least for the overall choreography or at least for the artistic impression. On the other hand, there are no actual quadruple jumps or even pirouettes with systemic control until you are completely dumbfounded. Data-based decision-making and transparency will already improve with this measure, and perhaps it will also give an additional boost to the acceleration required by horizontal control.

Interactivity and partnership are also required from the planning and civil service preparation processes. Among other things, the design exercise of innovative and proactive management carried out by the OECD is related to this goal. Many of the contents of the more proactive, long-term and listening social policy that it brings out reflect development in the same direction as the government program's promises to reform politics.

The promise of a more long-term policy includes, for example, the systematization of the transition process between periods of government, in order to improve the continuity of long-term reforms, and institutional memory. Instead, the above-mentioned trust challenge can be answered, at least in part, by testing new approaches and operating methods for allocating budget resources to emerging phenomena, or by more institutionalized dialogue and balancing between citizens, officials and politicians. (OECD 2022, p.6)

An interesting example of a new kind of interaction has been the frequent Citizen Pulse survey, which has collected views of stakeholders and citizens on current topics, such as the corona crisis, local elections and the war in Ukraine, as well as general-level themes, for example well-being, mood and trust. From the point of view of the government's promises, it is interesting that in one survey, citizens' views on the fulfilment of the promises were reviewed.

The OECD examined, in 2022, how Finland has been incorporating anticipatory functions within its governance system to deal with complex future challenges in a systemic way. The country study performed by the OECD identified six main challenge areas for the Finnish government:

- Overcoming the strategic foresight impact gap by integrating futures and foresight with core strategic processes, innovation, and experimentation.
- Opening up the development of policy alternatives connected to future challenges by systematically involving citizens and other stakeholders in future-oriented policy creation.

- Strengthening the capacity of public servants to reflect and act on future policy challenges by increasing access to and experience with anticipatory innovation approaches and tools.
- Ensuring that traditional government policy steering mechanisms—strategic, budgetary, and legal—allow for (and do not inhibit) the exploration of policy alternatives and the tackling of complex problems.
- Using anticipatory governance mechanisms to allow complex and long-term policy issues to be collectively understood and sustained across the policy cycle.
- Countering government silos and creating new methods of collaboration to address emerging problems in a cross-governmental manner.

Even at the beginning of the government term, hardly anyone guessed that the work of the government would be strongly determined by the global pandemic, which on the other hand offered a unique test for the government's pledges for renewal, as well as for governance more generally. However, in many respects, the State Council was able to deliver on the pledge of continuous learning by shifting to digital methods of operation in many respects on an usually rapid schedule, and in addition, communication was carried out in novel ways, utilising digital platforms. In this way, digital shift also in its way supported the government's pledge for new kind of interaction.(See: [FSD3530 Citizens' Pulse 5/2021 | Aila Data Service \(tuni.fi\)](#))

### **How to bring solid evidence-base for anticipatory governance?**

Anticipatory governance with systems-characteristics is easily forgotten when the focus shifts to metrics. The 75% employment goal has been particularly highlighted in the public debate as a measure of the government's success. On the other hand, according to the Sanna Marin government programme, the government is also committed to using a more holistic view than simply traditional economic indicators: "In support of traditional economic indicators and in parallel with the preparation of decision-making, indicators that describe economic, ecological and social well-being are used."

However, it is unclear how this has been realised in practice. One partial answer may be the revised climate act that entered into force last summer, which set Finland the ambitious goal of being carbon neutral by 2035. It is likely that the law, as a long-term policy, will create the ground for the expansion of decision-making metrics and, in particular, for an increase in the importance of ecological sustainability as part of the measurement of political goals, though the government to follow, negotiating its programme currently in May 2023, has shifted its focus yet again, and the final commitment and selection of steering mechanisms, indicators and evidence-base remains to be determined.

Another example of a one-measure policy, which seems to have made a come-back on the policy agenda is the goal of raising research and development spending to four percent of gross domestic product. The government's proposal for an RDI financing act based on the proposal of the parliamentary R&D working group, which strives for this, was passed by the previous parliament (HE 211/2022 vp.). The purpose of the law is to secure the long-discussed level of government research and development funding in 2024–2030 to the target level of 4%. The broader objective is to improve

the predictability and sustainability of government research and development funding, in itself an important factor for the ability to commit to anticipatory governance.

Even if the goal could be expressed as a single numerical value, a more anticipatory and systems-based nature is also reflected in the afore-mentioned RDI goal, as it also requires a commitment to cooperation and interaction across societal sectors. The mode of making policy based on cooperation and interdependencies is ambitious and the promise of systemic guidance is significant. Researchers, experts and representatives of civil society often feel frustrated with the slowness of progress and the boundary conditions of choreography and practical implementation (to continue with sports metaphors, perhaps the quality of both coaching and training and the resources available for it).

### **Systemic change in practice: how scaling supports knowledge-based anticipatory governance**

In some cases, in this paper we describe systems changes, i.e. changes that occur in policy regimes, administrative rules or practices, or even in political shifts of government. Other times we are describing systemic changes, i.e. changes that reflect more fundamental shifts in governance, where not only the characteristics of systems but also their mechanisms or dynamics of change are shifting, i.e. meta level transformations. Whilst systems may change as a consequence of government changes for instance at specific pre-determined or fixed time points, scaling is more likely to involve a systemic change, as the process cannot be pre-determined or analysed in a given point in time, rather it is a process of emergent change and the very nature of the system responding to external and internal factors which accompanies the reflexive, self-correcting and balancing responses to the process that are at the heart of change.

In addition to using foresight, research evidence and committing the government to a more long-term metrics, methods for scaling practices, which support evidence-informed, participatory and future-oriented policy-making has in recent years become the object of both scholarly and more practice-driven interest.

Scaling is a recurring theme in so-called transition literature, often relating particularly to practical actions and mode of operation required for systemic change. Numerous typologies of scaling exist in the literature (Bauwens et al. 2022). A simplified version of the scaling typology has been created as part of the Finnish “VIPU” (“Lever”) project within the Sustainable City programme. According to this typology, the various subtypes of scaling involve strengthening one's own operations, expanding and disseminating operations, and mainstreaming (Schmidt-Thomé et al. 2021). The typology developed in the “VIPU” project is based on a typology created by an international research team on scaling sustainable development initiatives. This typology outlines eight ways of amplification: 1) stabilizing, 2) speeding up, 3) growing, 4) replicating, 5) transferring, 6) spreading, 7) scaling up, and 8) scaling deep (Lam et al. 2020).

In transition literature, the importance of umbrella organizations, intermediary organizations, and networks as part of scaling activities is also recognized. They serve as important mechanisms for collecting and transmitting information, as well as supporting coordination of activities and management of networks and operating environments (Bauwens et al. 2022). Scaling is presented as an essential part of the radical sustainability transition required by sustainability crises, because there are numerous good practices and examples around the world, and scaling can thus partly act as a catalyst for the necessary change. Despite this, it is also necessary to create entirely new solutions (McPhearson et al. 2021).

Scaling can be seen as a well-established theme supporting systemic change in the literature. However, scaling also requires active risk management, referring to the *anticipation* of undesirable consequences, and monitoring and evaluation of the spread of innovative practices. This is important because systems tend to resist change and contain numerous path dependencies and other

characteristics that reinforce existing structures. Systemic change and its knowledge base also raise the question of power. Sustainable solutions need to be inclusive, taking into account more marginal types of knowledge and perspectives (Fazey et al. 2020).

The link between scaling and systemic change themes often implies sustainability in a broad sense and is not limited only to ecological sustainability issues. One such future vision or narrative that intertwines different dimensions of sustainability is the idea of a "good Anthropocene", which serves as a counterimage to the dystopian future image of business-as-usual scenarios (McPhearson et al 2021).

### **Discussion - a need for a paradigm shift?**

The aim of anticipatory governance approach is to develop an innovative viewpoint on the complex and interconnected problems that may arise in the future. As a result, in relation to the application of AG, terms like "evidence base," "metrics," "intervention logic," and so on need to be described in a new way. In a world that is growing more complex, traditional forecasting and foresight models, theories of change, and evaluation theories are becoming increasingly obsolete (see Patton 2011; Uusikyla et al., 223-231 for references). As Albert Einstein stated, "You can't solve a problem on the same level that it was created. You have to rise above it to the next level." The systemic change of society means the simultaneous change of operating models, structures and these interactions, which creates the conditions for future well-being and sustainable development. When it comes to systemic change, however, there are two distinct levels to consider: 1) socio-technical transition (or simply transition) and 2) transformative change. When defining, analysing, or supporting a comprehensive non-linear systemic change process, transition and transformation are often thought of as very comparable terms (Hölscher et al. 2018). In the framework of sustainable development and the green transition, some scholars (e.g. Geels & Schot 2007) refer to transformation as one alternative transition option.

The nature of anticipatory governance is clearly not a complete or radical break from its predecessors, the dominant paradigms in public governance, rather it combines and re-focuses some of the elements and key characteristics of governance. We do entertain the possibility of a paradigm shift, which would be mainly connected to the logics and outcomes of institutionalisation, where the sustainable transition agenda could be part of the shift.

The logic of cause and effect in dynamic complexity is non-linear and arises through interactions. Small adjustments in operating techniques and behaviour may have far-reaching repercussions on a systemic level in this situation. Small things repeat themselves in non-linear development, which can lead to unexpected outcomes. Such a transformation is referred to in complexity literature as emergence or emergence. The appearance of new, unexpected structures, patterns, or processes in a complex system is referred to as emergence (Humphreys 2016; Williams 2021). The resulting whole cannot be predicted based on what is known about its parts. Seemingly, things just happen for no specific and identifiable reason. The resulting whole does not consist only of components. The resulting entities can interact with the parts from which they are formed.

The whole is greater than the sum of its parts in phenomenon-oriented systemic transformation (Ehresmann et al. 2018). Furthermore, it must be recognized that the same measure (for example,

corona limits) might have quite different effects in the short and long term, and the nature of the repercussions can vary substantially from context to context. Karen Pittman (Forum on Youth Investment) summed up the distinction perfectly: "At best, programmatic interventions help beat the odds. Systemic actions can help to improve the odds."

Systemic change can be investigated from the standpoint of the factors and situations that enable change. John Kania, Mark Kramer, and Peter Senge (2018) have identified six factors that condition systemic change can be identified, which are structured into three levels of change. The structural level of systemic change consists of operational principles, operational practices and resources. The structural level is concretized on the one hand as society's institutions, management practices and regulatory solutions that enable and limit the interaction of actors. On the other hand, the question is about the distribution and allocation of material and immaterial resources. At the level of relational change, relationships and interactions and power dynamics influence systems change. The number of relationships and the quality of connections have a decisive role on what kind of influences we are exposed to at any given time. At the level of transformative change, the core factor is the mental models of individuals, i.e. those deeply rooted habits that make us take things for granted and that guide our thinking, what we do and what we say.

According to Gregory Bateson (1973), knowledge in social systems is not passively transmitted. Learning takes place by assigning meanings to signals and converting them into information and knowledge. The latter transfer can be called a "difference that makes a difference" to the recipient of that information. Learning, on the other hand, is the process of marking these differences. Therefore, mental models, relationships and structural factors all have a simultaneous effect on systemic change. The challenge of the anticipatory governance approach is to connect these to the basic assumptions of the model and define the way in which the dynamics of change can be understood as part of a complex decision-making process.

<sup>[1]</sup> This section relies on a Finnish-language literature review undertaken by Pirkko Vartainen and her team at University of Vaasa in 2020-2021, as part of the "Steering2020" -project implemented as part of the government's research and assessment activity. Source: Pirkko Vartainen, Harri Raisio, Niklas Lundström, Ville-Pekka Niskanen (2020): Katsaus valtion ohjaustoiminnan kehitykseen: Fokuksessa governance- ja kompleksisuuskirjallisuus. [d82c5986-2791-a2b2-10d3-8d5593981936](https://doi.org/10.21203/2021.01.0001) ([tietokayttoon.fi](https://tietokayttoon.fi))

<sup>[2]</sup> A Finnish-language version of this sub-section has been published as a blog (Lähteenmäki-Smith & Manu 2023): , [Julkishallinnon systeeminen ohjaus ja politiikan tekemisen uudistuslupaukset:kaksoissiirtymästä julkisen johtamisen neloslutziin? - MDI](#)

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