

Global (Dis)Order
international policy programme

What can
we (not)
know about
the future?
Predicting future
(dis)orders

Abstract

Modern governments partly derive legitimacy from the ability to foresee, assess, and address threats – from ‘natural’ to social/political, as well as their intersection. At present, this ability is significantly challenged by climate change, as a process both surpassing and amplifying traditionally conceived risks, but also by the rootedness of anticipatory practices in the order whose future they are meant to predict. This paper identifies a key mechanism in these limitations, called epistemic attachment. It uses two historical cases of (non)prediction – Covid-19 pandemic and the dissolution of former Yugoslavia – to illustrate how this mechanism works in particular knowledge/governance arrangements, and derives policy implications for the organisation of predictive systems.

Introduction

Anticipation is central to the governance of contemporary, complex societies. Modern political regimes derive at least a part of their legitimacy from anticipatory capability – their ability to (accurately) predict, assess, and mitigate (if not neutralise) threats, from those seen as ‘natural’ (such as hurricanes, volcanoes, and floods) to those designated political or social (wars, terrorism, and economic crises) (Andersson 2018; Bacevic & McGoey 2024).

At present, this ability is significantly challenged by several interconnected factors; one such factor that has been extensively studied is climate change. Climate change not only crosses the (arbitrary) boundary between natural and social/political risks but also raises the question of the threshold of survivability: what happens at the point at which the conditions on Earth start looking very different from those in recorded history (Dunn 2021). A related but less explored factor concerns the fact that contemporary systems, methods, and processes of prediction are themselves based on the historical configuration of power we usually refer to as the ‘global order’ (e.g. Andersson 2018; Bacevic 2020a). This poses questions about the ability of these processes, methods, and systems to conceptualise a future that goes beyond the constitutive elements of the existing order.

This paper argues that it is precisely because we are rooted in the categories of this global order that we are limited in what we can and cannot know about the future. The paper sketches out the philosophical nature of this problem and derives its implications for contemporary predictive systems, including the scientific advisory committees, institutes, and think-tanks at the intersection of policy and research. It illustrates this with two case studies: a recent one, concerning the limited prediction of the trajectory and effects of Covid-19 in the UK; and a slightly older one, concerning the (non)prediction of the violent breakup of the former Yugoslavia in the 1990s. These cases allow us to observe a key mechanism at work in shaping how, and if, we make predictions.

While this paper has implications for all systems with a significant crossover between knowledge (knowing something) and intervention (doing something about it), the discussion focuses on the political and policy context of countries characterised by high predictive

capacity and liberal-democratic political governance (Bacevic & McGoey 2024).¹ While the mechanism theorised here will probably take different forms depending on the specific purposes of prediction – e.g. whether in the context of public health planning, military or intelligence forecasting, or community resilience – all of these contexts involve communities of knowers (politicians, advisors, civil servants, analysts, and so on) who derive at least a part of their legitimacy from their relationship to specific objects (or classes of objects) of knowledge, as well as to each other.

The relationship between people as knowers (knowledge subjects) and things they know about (knowledge objects) is something I call epistemic attachment. This concept describes the link between subjects of knowledge – scientists, analysts, journalists – and objects of knowledge – things like ‘the state’ or ‘global order’. This is different from approaches that attribute predictive limitations to individual processing traits or habits of thought (e.g. cognitive biases), because knowing about these objects (being an expert on the state, or on regime change, or on a particular part of the world) is at the same time an enablement and a constraint. It allows us to be seen (and recognised, and credited) as knowers, but at the same time defines what we can be seen as knowing about. Rather than an outcome of individual psychological factors, epistemic attachment is an interaction between individual factors, social relations, and the social organisation of knowledge, including institutions, structures, and policies related to anticipation/forecasting. Better understanding this mechanism can highlight opportunities for intervention, including in the organisation of spaces and platforms for the production and exchange of knowledge about the future.

The following sections develop this argument, first, through an elaboration of the elements that shape epistemic attachment and, second, through two case studies illustrating how it operates, both at present and historically. The penultimate section offers some implications of the present analysis, while the final derives from this analysis policy implications and suggestions for the organisation of predictive systems and processes.

From dreams to prophecies, divination, and omens, human cultures have – for most of recorded history, anyway – engaged in some form of prediction. Yet, contemporary prediction encompasses a vast system at the intersection between politics and knowledge production.

The knower and the known

Predicting the future, of course, is not unique to modern, liberal, or capitalist societies. From dreams to prophecies, divination, and omens, human cultures have – for most of recorded history, anyway – engaged in some form of prediction. Yet, contemporary prediction encompasses a vast system at the intersection between politics and knowledge production. Institutions include universities, government agencies, institutes, think-tanks, community organisations, scientific advisory committees, as well as the media – both traditional (the press, radio, and television) and ‘new’ (including social media). The actors that engage in prediction include politicians, policy advisors, and civil servants, but also scientists, researchers, and modellers. These epistemic communities engage in prediction in different ways, using different methodologies and often focusing on different aspects (e.g. ‘climate’ vs. ‘the economy’ vs. ‘population health’). This means our ideas about the future are not only projections about likely future states of certain objects but also – more fundamentally – judgements about what is there to be known about; in other words, what are the relevant objects of knowledge when it comes to predicting the future.

¹ High predictive capacity is a characteristic of countries with developed public knowledge production systems (higher education/research) and intelligence systems (Bacevic 2020a). As I have discussed elsewhere (Bacevic 2022, 2021, 2020b,c, Bacevic&McGoey 2024), the combination of high predictive capacity and liberal-democratic governance leads to an understood relationship between legitimacy and (perceived) predictive accuracy – as reflected in the question Elizabeth II posed to economists at the London School of Economics in 2008, referring to the failure of prediction before the financial crisis: “Why did nobody notice it?”

Furthermore, these objects of knowledge influence not only the kind of predictions we can make but also who we are – in other words, our identities and practices – as knowers. This may seem strange at first. Even if we are accustomed to the idea that researchers shape their objects of research – that the nature of what we are studying will be shaped by how we are studying it (the observer effect) – we are much less accustomed to the idea that we are shaped by what we are studying. Yet, there is ample evidence for this, from biologists being shaped by the forms of life they study (e.g. Carson 1962; Safina 1999) to social scientists being influenced by the injustices suffered by those they study.

But our objects of knowledge shape us in a way yet more basic: their existence is necessary for our existence as knowers. After all, we can only be experts if there is an object to be expert about. For instance, we can only be humpback whale scientists if there is such a thing as humpback whales. This does not mean we cannot observe, document, and aim to counter the decline in humpback whale populations, but it does have implications for our capacity to imagine a world without humpback whales. We depend on the continued existence of these objects not only for our legitimacy as experts but also for our continued existence as knowers. Epistemic attachment is this mutually deterministic relation between knowers (knowledge subjects) and objects of knowledge.

This brings us closer to the main issue: how we relate to objects of knowledge – the things we think there are to know about – shapes our ability to predict. Our attachment to things that we think exist in the world and things we are taught to focus on influence us when we try to predict the future of that world or its relevant parts (Bacevic, 2022; 2020b). Importantly, these relations need not be evaluative; an epistemic attachment is not the same as thinking something is good or bad. What attachment means in this sense is that we assume our objects of knowledge are relatively durable, at least in part because this legitimises our practice of viewing them as objects of knowledge. Both the perception of epistemic objects as discrete objects, and the perception of their (relative) permanence, is necessary for prediction (cf. Amore 2013). This has important implications for our ability to conceptualise transformations – and disappearances – of these objects.

Adding in consideration of social and political systems further complicates this problem. To begin with, social and political systems entail more than a few objects or classes of objects, as well as their interactions. Of course, scientists studying humpback whales do not study whales as isolated from their environment – including hunters, corporations polluting feeding grounds, recreational boat users, and governments regulating sea and fishing rights. Difficulties in studying these systems arise because these different parts of the whales' environment fall within the domains of different disciplines. Even ecology, which by definition aims to understand complex systems and their interactions, uses very limited models of human behaviour, usually derived from evolutionary psychology. Social and political sciences are no less prone to disciplinary partitioning. This applies not only to formally defined domains – for instance, international relations study relations between states, law and legal studies focus on legal regulation – but also to the classes of objects they engage with.

Confusingly, these objects can sometimes carry the same name: for instance, both anthropology and political science study 'states', but what they mean by 'state' is very different. Even more problematically, these objects are rarely the only ones relevant to understanding the dynamic of a particular system and thus predicting its trajectory. While what is usually dubbed 'complexity science' aims to integrate different disciplinary insights, a systematic and intentional orientation to different disciplines is still far from standard practice in most forms of scientific training.

What does this mean? To illustrate how this shapes the possibility to predict, I now turn to two cases of (non-)prediction. The first case is well known and concerns the (limited) prediction of the trajectory and consequences of the Covid-19 pandemic in the UK. The second case has been somewhat forgotten but offers important lessons for thinking about the mutual determination between knowers and objects of knowledge: the (non)prediction of the violent dissolution of the former Yugoslavia in the 1990s. These cases (see e.g. Byrne and Ragin, 2009, for the use of case-studies) offer distinct but complementary illustrations of how specific forms of epistemic attachment can shape the possibility of projecting trajectories of complex systems composed of but not limited to those objects.

Covid-19: the pandemic everyone (could have) predicted

The relationship between scientific advice and the UK Government's approach to the Covid-19 pandemic has been extensively studied, including in my own work (Bacevic 2020a, b, c; Bacevic, 2021, 2022; Bacevic & McGoey 2024). While public inquiry will determine accountability for the UK's high rate of virus-related deaths and disabilities, what stood out in the first months of the pandemic was the degree to which government bodies seemed unable to comprehend or accept the seriousness of the situation. This was reflected in casual remarks that Covid was 'just like a common cold' and in the delayed introduction of non-pharmaceutical interventions aimed at mitigating the spread of the virus, including the use of personal protective equipment (PPE), testing and tracing techniques, and social distancing measures. What made this particularly problematic was that the Covid-19 pandemic was not unpredicted; on the contrary, 'a global pandemic' was on the UK's risk register and the specific subject of at least one cross-government preparedness exercise.

In this sense, the puzzle of the Covid-19 pandemic is not due to an absence of prediction that a pandemic could happen but rather to the absence of prediction concerning its particular trajectory in and effects on the UK population. There are several possible explanations for this. One, following Nassim Taleb's work on 'black swans' (2010), would suggest that political actors tend to discount the possibility of major disruptive events that challenge the regularity of prediction. Another would see delays as a consequence of the choice to not use EU resources as part of the then-governing party's ambition to be seen as 'delivering Brexit'. While both of these played a role, I suggest that the specific trajectory of pandemic (mis)management had more to do with how scientific knowledge production during the pandemic reflected the division between domains of expertise – and how this conceptualisation of the pandemic as composed of discrete (classes of) objects overlooked the pandemic as a totality.

During the pandemic, the UK Government took official scientific advice from the Scientific Advisory Group for Emergencies (SAGE). SAGE summarises existing evidence into briefings on relevant topics for the team meetings of the Cabinet Office Briefing Room (popularly referred to as COBRA), where they are used to inform policy. SAGE is composed of a number of subgroups, some predating the Covid-19 pandemic and some formed during it: Scientific Pandemic Insights Group on Modelling (SPI-M), Scientific Pandemic Insights Group on Behaviour (SPI-B), Environmental Modelling Group (EMG), and so on.

The Government chiefly sought the advice of SPI-B in two domains: the risk of public disorder and the likelihood of adherence to specific measures, i.e. behavioural and social interventions. They also asked for guidance for people who were asked to self-isolate. In addition, throughout

this period, the Government was following public opinion and commissioning research into public approval for different kinds of interventions.

SPI-B advised the government that large-scale rioting was unlikely: 'Acts of altruism will likely predominate and the Government could promote and guide these' (SPI-B-07, 2020, 1). They were asked to consider interventions such as stopping large events ('mass gatherings'), school closures, isolation of people with symptoms, isolation of people with symptoms and also their households, general social distancing, and lengthy social distancing for people in at-risk groups. They cautioned that such interventions would increase the chances that there would be areas or groups who were visibly not complying or not seeming to comply.

The group was somewhat split around certain aspects of adherence to behavioural and social interventions. One chief source of disagreement came from the assumptions concerning the likely behaviour of the UK population. The only preceding large-scale dataset concerning behaviour in a pandemic, including adherence to measures such as mask-wearing, came from China and other Asian countries. There was a consensus within the SPI-B that enforcing such measures would be unlikely to work, as, presumably, the UK population was less docile and disciplined than the Asian population. This assumption seems to have been unquestioningly accepted across the group.

Public perception of the difference between the UK's strategy and those of other countries was identified as another possible source of discontent:

Expectations of how the Government will react will be set by media reports of public health strategies in other countries. This increases the risk of public concern if interventions that are perceived to be effective are not applied. A clear explanation as to why expected interventions are not being implemented may be necessary (SPI-B-04, para 14).

It denied the possibility that the UK population might be rule-abiding or rule-following; and it saw the population as, overall, on the verge of descending into disorder.

The model of human behaviour that the UK government used to predict the trajectory of the Covid-19 pandemic, then, was a particular one. It denied the possibility that the UK population might be rule-abiding or rule-following; and it saw the population as, overall, on the verge of descending into disorder. What it did not take into account was that the very knowledge of the virus's nature might shape how the public would react. In other words, that awareness of the high rate of fatalities, the threat of medium- and long-term effects on the immune system (long Covid), and the disproportionate effects on certain populations might, in effect, change how the population acted.

The chief lesson is that the UK government was trying to do two things: (1) predict the behaviour of the virus, and (2) predict the behaviour of the population. In this context, it sought advice from people who were experts in either, but there was no space or platform where the two could be usefully hybridised. SAGE, which was meant to compile and summarise the input and recommendations of its respective subgroups, was composed of people whose ability to creatively engage with evidence was severely constrained by both the limited mandate they had as science advisors and the timeframe. In this context, predictions had to be made based on the 'best evidence available'. SPI-B were asked to provide advice and comment as experts on human behaviour. SPI-M were asked to provide mathematical models as experts on reproduction rates. The New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) were asked to provide knowledge about the nature of the virus. There was, however, no expertise or method to bring these together in a way that would have enabled thinking about how the nature of the virus would change the nature of the social – and vice versa.

Could there have been? Scientific knowledge depends on an infrastructure for producing and mediating evidence. In the UK, this infrastructure has been oriented towards inter-institutional competition through the Research Excellence Framework (REF), which privileges disciplinary evaluation. The REF places high value on research impact, which is primarily defined as influencing policy. This means that scientists and research organisations that have a relatively direct link to governmental bodies are unlikely to jeopardise this connection. Being seen or credited as experts, in other words, gives them legitimacy; but it also limits what they can be seen as having authority on.

Furthermore, scientific knowledge is rarely accessible to the general public, most of whom have very limited interdisciplinary scientific literacy, given the UK's tendency towards early streaming in education. In this context, the only attempts at intervention that allow for the possibility of interdisciplinary expertise outside established venues for scientific advice communication can be expected to come from informal networks of scientists who depart from (or even go against) government-mandated ways of sharing knowledge with the public, as eventually happened with members of Independent SAGE in the UK and scientists with a large public (usually social media) profile, such as Carl Bergstrom in the US.

The example of Covid-19 shows that prediction depends on how we see the nature of the object – in this case, a pandemic. The fact that scientists were trained to see only one part of this object – the virus or the behaviour of the population – means they were unlikely to step outside of the area of expertise that gave them legitimacy. In other words, they were content to provide evidence on the topic and within the confines of the questions that political actors were asking.

One possible interpretation of this is that the fragmentation of scientific expertise – a too-tight coupling between epistemic subjects and epistemic objects – can undercut the ability to predict. However, this is not the only way in which epistemic attachment works. To illustrate how epistemic attachment to an object of research can prevent seeing its fragmentation, we turn to the case of the former Yugoslavia, a country whose dissolution no one – or almost no one – foresaw.

Yugoslavia: a war (no)one foresaw

When the Socialist Federal Republic of Yugoslavia disintegrated in the 1990s, the scale of violence shocked observers. Europe's deadliest armed conflict in the 20th century since the Second World War (estimated 130–140,000 dead), it involved genocide, torture, rape camps (resulting in the official recognition of rape as a weapon of war), and a massive displacement/refugee crisis. It led to the establishment of the International Criminal Tribunal for the former Yugoslavia (ICTY), which convicted 161 individuals of serious violations of international humanitarian law, including violations of the laws or customs of war, genocide, and crimes against humanity. It durably transformed both the political and economic face of the region – there are now seven states (though the statehood of Kosovo, formerly Serbia's southern province, is still disputed) of which two are EU members, residual occasional conflicts (most notably in the north of Kosovo), and significant differences in economic and political orientation.

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Yugoslavia was an object of intense interest and scholarly attention in both the East and the West, not least because its hybrid form of socialism² and non-alignment made it an early example of the 'third way'. Of course, there were also less purely scholarly motivations – at least a part of US state-funded academic research in the Yugoslav federation was aimed at keeping tabs on a model of socialism that could more easily appeal to 'Westerners' than the Soviet one. Yet, for all the attention paid to Yugoslavia after the Second World War and the intensity of academic knowledge production concerning its future, no one predicted the nature of the political crisis that would lead to its collapse. With one exception: Bogdan Denitch, a Yugoslav American professor of sociology at the City University of New York (CUNY), whose *The legitimation of a revolution: the Yugoslav case* (1976) was eerily prescient in both describing the ethnic divisions and the likelihood of violent conflict.

What made Denitch more successful in 'predicting' this crisis than virtually anyone else writing on Yugoslavia at the time? Born in 1929 to Croat Serb parents, he spent his childhood following his diplomat father to a series of countries, including Greece and Egypt; in 1946, the family emigrated to the US (the fact that his father was a civil servant in the previous government would have made it impossible for them to continue living in Yugoslavia after the Communist regime, led by Josip Broz Tito, formally took over). There, Denitch trained as a factory worker while studying for a degree in sociology at CUNY. In 1968, Denitch was awarded a major research grant to study Yugoslav elites, which would eventually become *The legitimation of a revolution*. He retired in 1994 and his last book, *Ethnic nationalism: the tragic death of Yugoslavia*, came out in the same year. It is a reflection on the conflict that was still going on at the time, whose architecture he had foreseen with such clarity eighteen years earlier.

Did personal history, in this sense, have bearing on his capacity to predict? One explanation could be that Denitch's position as both a Yugoslav and an American allowed him to see the situation with less attachment. In fact, many scholars depended on the continuing existence of Yugoslavia as an object of knowledge.³ For scientists from Yugoslavia, the 'exceptionality' of the Yugoslav model was a source of epistemic legitimacy, particularly in the context of international collaboration. Many of them were educated abroad and had access to networks and funds from both the West and the East. Their authority was, at least in part, constructed on their positioning as possessors of 'local' knowledge (Bockman & Eyal 2002): while this kind of epistemic relationship could be exploitative, in the sense of benefitting West European and American scientists, it also provided Yugoslav scientists with links to internationally-renowned theories and scholars, thus solidifying their status both at home and abroad. For scholars from the West, on the other hand, Yugoslavia served as a perfect experiment in mixing capitalism and socialism. Some saw it as a proof that socialism need not go hand-in-hand with Stalinist-style repression. Others saw it as proof that limited market exchange could function even in command economies, deducing (correctly) that the promise to support failing economies in exchange for access to their future consumer markets could be used as a lever to bring the Eastern bloc in line with the rest of the capitalist world.

For both epistemic communities, then, Yugoslavia represented more than a natural 'laboratory': it was an anchoring device for legitimating their own positions as scholars – particularly as scholars of Yugoslavia. In this sense, the identity of both groups depended on the existence of Yugoslavia as an object. If no one foresaw the war, it was because it played no role in either of these epistemic constructs. The anchoring function of Yugoslavia made scholars who

2 Yugoslavia's hybrid socialism was sometimes referred to as market or state socialism because it had relatively open borders and trade and maintained relations with both the Eastern bloc and the West.

3 The historian Polybius, who predicted (accurately and exceptionally) the fall of the Roman Empire, is another example of such an 'in/outsider' (thank you to Dr Cornwell for this example).

specialised in the area unlikely to imagine a world in which their epistemic object could simply cease to exist. They certainly imagined, thought, and debated different ways it could be transformed, but not really that it could be obliterated.

The case of former Yugoslavia presents a different form of epistemic attachment. Whereas in the case of UK Government's scientific advisory panels during the Covid-19 pandemic the failure of anticipation comes from the fragmentation of expertise – separate knowers, separate objects of knowledge – in the case of former Yugoslavia it comes from the anchoring of expertise to one unitary object, whose resilience was the prerequisite if not *raison d'être* of the work all of those knowers were involved in. Both cases, however, demonstrate the importance of the relationship between subjects and objects of knowledge.

This domaining of expertise (Bacevic, 2021b) is itself a product of the historical and political process of professionalisation and stratification of knowledge production specific to the modern liberal order (e.g. Jasanoff & Hyung-Kin 2015). In this sense, we need to consider the implications of this for the social organisation of knowledge, both in terms of concrete expert and advisory teams, and for the possibility of predicting future (dis)orders.

Conclusions and implications

In addition to the ontological characteristics of complex systems and the characteristics (individual or collective) of those studying them, relations between knowers (subjects of knowledge) and what they know about (objects of knowledge) play a crucial role in shaping the accuracy and very possibility to predict. This relation, which is in this paper described as epistemic attachment, is both an enablement and a constraint: it provides legitimacy by 'attaching' knowers to specific objects or domains of knowledge, but it also limits their capacity to see beyond these objects, both in terms of the totality of the picture and in terms of the future.

In the case of Covid-19, the key element of this relation was that epistemic communities were defined and legitimised by their focus on specific aspects – humans or microbes – rather than on those aspects' interactions. While in theory these perspectives should have been complementary, there was no procedure, method, or field to unify them, in part because the structure of government scientific advice did not support it. The experts, in turn, at least formally accepted the circumscription of their expertise – in part because their continued validation as experts rested on claiming knowledge over a particular domain of the world. Even those who eventually broke out of the government-mandated field of intervention (e.g. members of Independent SAGE) tended to preface or frame their interventions within specific domains of expertise. In the case of the former Yugoslavia, the key characteristic of different epistemic communities with an interest in its future was that, regardless of disciplinary, political, or institutional affiliations, they equally depended on the continued existence of Yugoslavia as an object of knowledge. After all, if it suddenly ceased to exist, what would they be studying? This kind of epistemic attachment made them capable of imagining different transformations of the Yugoslav federation, but not that it would literally cease to exist.

The cases of (non)prediction of Covid-19 and the dissolution of Yugoslavia teach us that prediction depends on the questions we ask, who answers them, and under what conditions. The first tends to be the domain of the philosophy of science; the second of the creation and negotiation of authority and expertise; the third, in turn, of the social and political organisation of knowledge. In this sense, the accuracy of prediction is not an outcome of individual or even

disciplinary 'biases'; it is an outcome of the relational nature of knowledge. This relational nature applies to both the relationship between knowers and objects of knowledge (attachment to objects of research), and to the way this attachment itself shapes, reflects, and reproduces the social organisation of knowledge (who can be seen or credited as knowing about what). In this sense, it is, of course, neither possible nor practicable to entirely eliminate epistemic attachment, as long as there is an association between knowers and the known. This, for that matter, is no less the case with computer-driven (AI) forecasting, which tends to reflect the biases of the human-made model cases it was trained on. Instead, this paper offers some suggestions for the organisation of social production of knowledge and expertise, especially when it comes to knowing about the future.

One set of suggestions concerns the questions that we ask. For instance, instead of asking "How will the population react to intervention X", "what is the reproduction rate of the virus under conditions Y", or "How will this constitutional reform shape object Z", we could focus on the elements of the present situation we are not seeing. While this may appear to resemble Donald Rumsfeld's 'unknown unknowns', but it primarily refers to the need to note which epistemic objects (objects of knowledge) we have been disciplinarily trained to 'unsee' or not pay attention to. For instance, we could ask: are our assumptions about popular reactions based on the belief in state authority? Are our questions about constitutional reform allowing for the possibility of a suspension of the constitution or a coup?

Further, we could question what elements of any totality (society, global trade, international order) we are holding constant in our predictions. What aspects do we take for granted or assume cannot change? This question addresses both our ontological bias – the assumed stability of objects – and the likelihood that we are basing our projections on (sometimes unexamined) assumptions about the nature of objects, most often manifesting as assumptions about human behaviour. For instance, we could question why is the UK population (on the whole) considered not rule-abiding, as much as we could ask why was the Yugoslav population (as a whole) considered unlikely to commit inter-ethnic violence?

This also connects to the degree of confidence in our projections. Experiments suggest forecasting confidence rests on successful prediction in the past (Himmelstein et al. 2021; Ptasczynski et al. 2022). While there are reasons for this, it is also a liability, both because it can lead to overconfidence and because, as the case of the former Yugoslavia suggests, it might make us disinclined to make projections that contradict our previous assumptions. Therefore, we could ask what degree of confidence in projections (ours or others') rests on inference from past cases? For instance, why was Yugoslavia seen as similar to Romania but different from Abkhazia? Why was Covid-19 seen as similar to SARS but the UK population 'different' from Vietnam or Korea?

The second set of suggestions concerns the social organisation of prediction, including the mediation, communication, and circulation of knowledge within scientific networks, expert teams, or scientific advisory panels, and the 'users' – equally state actors and the public. As the two cases analysed here suggest, the relations between expertise, legitimacy, and objects of knowledge can limit the ability to predict if authority of knowers remains circumscribed to specific domains of knowledge. One way to address this is to encourage the construction of teams of people with different disciplinary backgrounds, who are encouraged to contribute without sole reference to those disciplinary backgrounds. While some forms of scientific knowledge production do this, especially through exploratory or 'scoping' programmes, true interdisciplinarity remains an exception, rather than the norm. Systematically creating opportunities for such encounters – not only between already pre-defined disciplines, but also

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between different groups involved in knowledge production, including scientists, policymakers, analysts, and knowledge communicators/the media – could go a long way towards countering the ‘silencing’ of expertise.

This also relates to relations between different epistemic communities, including dynamics within such teams themselves. Ideally, conversations should not constrain or restrict people's contributions because they lack disciplinary expertise, but instead require or encourage team members to gain the aptitude to read discipline-specific data outside of their home disciplines (e.g. to be able to understand epidemiological projections even if working on behavioural science). In the case of scientific advice to governments and other political actors, this would also require a heightened degree of reciprocal transparency, insofar as epidemiologists should be able to understand political strategies, policy objectives, and international relations concerns, much like politicians have the right to demand that reproduction rates be explained to them. Of course, this may sound like science fiction – in all possible senses – at present (indeed, it bears some resemblance to the expertise modelled in Isaac Asimov's Foundation series⁴). However, it is important to remember that the division between science and politics is also a peculiarity of the modern world – and thus, predicting its possible end(s) and/or transformation may just call for the creative rethinking of their relationship in the future.

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4 The Foundation series is a series of sci-fi novels written by the American author Isaac Asimov and published between 1951 and 1993. The premise of the series is that a 'psychohistorian', Harry Seldon, predicts the fall of the Galactic Empire, and sets to save what is possible of humanity's knowledge during the 'dark ages', in a project known as The Foundation. The novel(s) have been turned into a TV series for Apple TV+, currently (2025) in its fourth season.

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Published February 2026

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doi.org/10.5871/global-disorder/9780856727382