

Handing Over the Keys to the City:

When governments may inadvertently solve one crisis with a bigger one.

Maurice Chiodo^{1 2}, Kennedy Mbeva³, Dennis Müller⁴, Coleman Snell⁵

Abstract: This paper introduces the concept of “handing over the keys to the city”, whereby political leaders facing severe crises delegate (potentially excessive) decision-making authority and/or operational control to external entities perceived as holding indispensable solutions. While intended to resolve the initial crisis, this delegation has the potential to inadvertently create larger, more intractable problems, and the desperation felt during a crisis can push leaders into Faustian pacts, trading control for perceived salvation. We develop a conceptual framework to analyse situations where governments hand over the keys to the city, presenting typologies for different crises, the types of key that can be delegated, and the extent to which such delegation(s) can occur. We conclude by drawing out the policy implications, and outlining a research agenda.

Keywords: *crisis governance, existential risk, risk management, public policy, power delegation, handing over the keys to the city*

¹ Authors are listed by contribution.

² Centre for the Study of Existential Risk, University of Cambridge, UK. mcc56@cam.ac.uk

³ Centre for the Study of Existential Risk, University of Cambridge, UK. km937@cam.ac.uk

⁴ Institute of Mathematics Education, University of Cologne, Germany. dennis.mueller@uni-koeln.de

⁵ Sage School of Philosophy, Cornell University, USA. colemansnell@gmail.com

The authors wish to thank Seán Ó hÉigearthaigh for his contributions, suggestions, and insight into this paper.

Table of contents:

Introduction.....	3
What does it mean to “hand over the keys to the city”?.....	3
Historical examples.....	5
Understanding what triggers handing over keys.....	8
Typology of crises triggering key distribution.....	8
Primary-secondary crisis pairs when handing over keys.....	11
Recognising what keys are distributed, and how.....	14
Identifying the types of keys being distributed.....	14
The extent to which keys can be distributed.....	19
Typology of “keys to the city” delegation extents.....	21
Conclusion.....	23
Summary of analysis.....	23
Future research.....	24
Final remarks.....	25
Bibliography.....	26

Introduction

What does it mean to “hand over the keys to the city”?

When society faces a small crisis, (local) civic leaders can turn to high-level leaders for assistance and support. However, in times of great large-scale crises, high-level leaders of countries, regions or other jurisdictions may find that the problem at hand is too large or complex for them to deal with using the typical tools they have at their disposal. Anthropologist Victor Turner described such moments as “social dramas”, in which society experiences a breach that must be repaired through ritualised or extraordinary measures to restore order (Turner, 1974).

Such crises may include pandemics, natural disasters, war, or any other unexpected breakdown of critical infrastructure.⁶ In these times of extreme, potentially existential, crises, which top-level leaders lack the tools to address, they can often be tempted to turn to creative, alternative methodology. This can manifest in the presentation of some individual or organisation, purporting to possess a “solution” to the crisis at hand. These leaders may see their situation as so dire that, to them, any solution is better than no solution - the situation they are currently in. Political theorist Carl Schmitt observed that in moments of crisis, it is the sovereign who decides on the exception, often enabling extraordinary concentrations of power in the name of stability (Schmitt, 2005). We call this phenomenon “*Handing over the keys to the city*”, whereby leaders are so paralysed with the crisis at hand, and yet so desperate to take action, that they see no other alternative but to place their faith and trust - and indeed that of the whole of society - in these typically inexperienced technical “wizards”.

An illustrative metaphor could be that of society or government as a large “walled city” which is currently on fire, with an incoming organisation purporting to provide a definitive solution being given a set of master keys, which open not just the external gates, but also all internal doors and passageways within the city. That is, complete or near-complete unfettered access to all parts of the operational levers of society; the “keys to the city”. This is akin to a Faustian pact, except rather than being triggered by greed, it is instead triggered by some (external) crisis and the ensuing desperation of political leaders. In other words, leaders may set out to do what they believe is best for their people yet end up causing significant harm. Yuval Harari has argued that in times of crisis, societies may willingly trade civil liberties and

⁶ Such as the Esso Longford fire, where an explosion at one gas facility shut off the gas supply to the entire state of Victoria (Australia) for almost 3 weeks in 1998 (Dawson & Brooks, 1999).

democratic control for the promise of algorithmic or technological salvation (Harari, 2018). And while not necessarily a certain pathway to greater disaster, the type, extent and duration for which these keys are handed over can have a significant bearing on the risks such a handover introduces into society.

Thus, we propose an interdisciplinary definition of handing over the keys to the city as: *“the delegation, during periods of extreme crisis, of substantial decision-making authority and operational control by political leaders to external entities perceived as holding indispensable solutions.”* This definition facilitates rigorous examination of key handovers (or “*delegation*” as we will now call it) across disciplines, clarifying its essential elements: crisis urgency, delegation of authority, and perceived indispensability.

What sort of scenario are we thinking about here, that might trigger a government to hand over the keys to the city? One such example could stem from any of the many facets of climate change. Changes to the climate might mean that current agricultural practices, or transport systems and road networks, or housing, may cease to be sufficiently effective for society to run. For example, crops may have insufficient yield, or housing may be inappropriately located and subject to flooding or forest fires, or transport systems may be severely strained under an influx of climate refugees. In any one of these scenarios, it may come to pass that political leaders, bereft of ideas on how to solve the crisis at hand, may be offered radical solutions to deal with the crisis. For example, this could be in the form of geoengineering to reverse the threat of climate change by injecting aerosols into the atmosphere (Tang & Kemp, 2021); a process known as Stratospheric Aerosol Injection (SAI) which is already recognised as having a huge potential to make matters much worse and an instance of where “the cure [could] be worse than the disease” (Tang & Kemp, 2021, p. 1).

Alternatively, given such geoengineering techniques are already suspected to carry great risks, organisations might offer political leaders various technical solutions such as Artificial Intelligence (AI) or Artificial General Intelligence (AGI) tools that advise on, influence or even control critical infrastructure such as crop planting, transport network changes, housing upgrades and relocation, etc. Langdon Winner’s argument that technological artefacts can have inherent political properties - especially when they influence how authority is distributed or decisions are made - applies directly to such cases (Winner, 1980). This argument was extended by Müller and Chiodo to cover digital and mathematical artefacts (Müller & Chiodo, 2023). Thus, the AI would, perhaps by proxy in an un-automated but still highly influential role, take over these key decision-making processes that would otherwise have been carried out by the government and its various administrative centres.

However, such technology might not have been properly tested over time, or even studied at all. Thus, the recommendations it produces may be totally inappropriate, and as a result crops may fail completely, transport networks may collapse, housing may end up being uninhabitable due to extreme temperature or flooding, etc. Sociologist Ulrich Beck, in his theory of the “risk society”, suggested that modernity generates novel systemic risks that outpace existing institutional capacities to govern them, particularly when technological fixes are rushed into implementation (Beck, 1992). And so, the solutions proposed by AI, which would have never been relied on in “normal times”, could turn a bad situation into a catastrophic one. A complete revamp of agriculture, housing, or transport, might take a very long time to undo⁷, thus if carried out poorly would calcify such problems for a prolonged period. And if the AI/AGI was deployed in an autonomous decision-making role, it may prove very difficult indeed to “turn off”, or even impossible. This “Skynet scenario”, though unlikely, demonstrates that handing over the keys to the city is a potential way for AI/AGI to jump the final hurdle to having operational control of various systems in government.

In short: a climate crisis may tempt government(s) to hand over the keys to the city to AI, potentially triggering an even greater AI crisis. This dynamic can also be found in the currently ongoing US-China AI race which is used to justify risky actions and reduced oversight by framing it as an existential threat that necessitates extraordinary measures (Ó hÉigeartaigh, 2025). Meanwhile, the race’s proponents argue for “progress at all cost” (ibid., p. 2), using competition to sideline safety concerns and to push for deregulation, thereby inducing a “race to the bottom” (ibid., p. 4) potentially introducing new AI threats.

Historical examples

Such scenarios are not simply hypothetical. Instances where governments have handed over the keys to the city have occurred, and moreover are becoming more and more commonplace, as we outline below. Though not every such handover led to disaster, some certainly did, and the overall handover process can significantly increase the risk to society of a “secondary” disaster unfolding.

Here are some illustrative examples where governments have handed over the keys to the city in the past:

⁷ Or never, as in the case of the Roman road network in Europe which persists and is still in use today; both intra-city and inter-city (Dalgaard et al., 2022).

- After the 9/11 terrorist attacks on the US in 2001, the US government “handed over the keys to the city”, in the form of sweeping additional powers and vast additional funds, to the NSA to implement and run unprecedented digital mass-surveillance programmes. What started off as techniques to detect and prevent terrorist attacks quickly became an immense mass-surveillance of the entire domestic population (Greenwald & Ackerman, 2013; Gellman & Poitras, 2013; Office of the Inspector General, 2009). We see this reflected in literature preceding the 9/11 terrorist attacks, in Michel Foucault’s idea of “biopower”, which argues that crises become the justification for expanded surveillance in the name of managing life itself (Foucault, 2020).
- During the Global Financial Crisis of 2008, economists were granted extraordinary influence over government fiscal policy to save or even resurrect the economy. What started off as economic and fiscal suggestions about monetary and spending policy quickly became political decisions on the reforming of society through government spending cuts and austerity (Stiglitz, 2010). Historian Adam Tooze has described this technocratic takeover as a “state of exception” in finance, where democratic norms were suspended in the name of market stability (Tooze, 2018).
- In 2020 the COVID-19 pandemic presented a global crisis of almost unprecedented proportions in recent times.⁸ To deal with this, governments (such as that of the UK) placed substantial, and arguably “too much”, weight on certain types of scientific insight (Sasse et al., 2020, p. 5). This was done under the mantra of “following the science” (ibid., p. 16) to justify political decisions. What started off as scientific insight about factors such as disease transmission and mortality rates, quickly became government justification for political decisions about how to operate civil society and the economy. Leaders were implying that such scientific insight was dictating policy decisions (ibid., 2020, p. 16), yet at the same time scientists themselves made it clear they were providing insight, not policy, even going so far as to publicly state “My role is not to say what the policy should be. I’m a statistician...”⁹ (Baker, 2021). Ultimately, the choice by leaders to heavily lean on ‘normal’ scientific insight in a ‘post-normal science’ setting where “facts are uncertain, values in dispute, stakes

⁸ The mortality rate of other historical pandemics was much worse (Feehan & Apostolopoulos, 2021).

⁹ This was by Sir David Spiegelhalter, a statistician and Professor for the Public Understanding of Risk at the University of Cambridge. In that same interview, he went on to say “However, I think far too many scientists [and] experts have been prepared to say: ‘Well, here is what the science says and therefore this is what should be done.’ I just don’t feel that’s appropriate unless somehow you switch hats and say ‘I’ve now moved...to [being] a member of the public who has opinions.’” (Baker, 2021).

high and decisions urgent” (Funtowicz & Ravetz, 1993) re-shaped society for years in ways that have since attracted harsh criticism.¹⁰

- There are cases throughout history of solutions being posed to problems or crises that end up bigger than the original crisis itself. One need only look at the long list of introduced species in Australia for examples, where attempts to deal with one species involved introducing another species, and the second of these becoming even more problematic than the first.¹¹
- During the Second World War, the allied nations were facing a significant crisis from the axis powers and an (existential) threat to their political structure and way of life. As a response to this (localised) crisis, the allies placed significant resources, effort, and faith into the scientific research team of the Manhattan Project (Reed, 2014), developing nuclear technology and producing the atomic bomb. However, such a weapon posed a significant threat to the entire world, and indeed continues to do so. There, a localised political-military crisis led to the development of weapons that later posed a global threat, and indeed at some point an existential threat to society when nuclear arsenals became sufficiently large that they posed an existential threat to humanity (Sears, 2020). This follows from Nick Bostrom’s definition of existential risk, which he defines as an event that permanently places an artificial upper bound on what humanity can achieve (Bostrom, 2002). Further existential risk scholarship shows that interrelationships and systemic vulnerabilities can lead to chains of smaller crises cascading into increasingly dangerous (and ultimately, existential) hazards (Manheim, 2020). In other words, localised crises can inadvertently create species-wide vulnerabilities.

At this point it is worth noting that the phenomenon of politicians carrying out some sort of (internal) power-grab during a crisis, under the auspice of “we can solve the problem, if only we had more power” - also referred to by scholars like Luke Kemp as the “Stomp Reflex” (Kemp, 2021), has a long history going back at least as far as the Roman Republic (Golden, 2013). Our framing of handing over the keys to the city describes a different phenomenon to this internal power grab, highlighting that for some government-crisis settings, an internal power grab is not sought, and/or might not actually improve the situation. Instead, we are

¹⁰ Sheila Jasanoff’s notion of “sociotechnical imaginaries” further explains how science and expertise gain legitimacy during emergencies by presenting themselves as embodiments of national will and progress (Jasanoff & Kim, 2015).

¹¹ There were cane toads to deal with sugar cane beetles (Turvey, 2013), and mosquitofish to deal with mosquitoes (Hamer et al., 2002, p. 446).

turning our attention to *external* power grabs, where an entity outside of government presents itself and is given vast amounts of power and control. This might not even be an intentional grab by the external entity, and they may indeed have been sought out by governments to come in and fix the problem. In any case, while internal power grabs during a crisis are commonplace and well-studied, we feel that (external) power grabs, in the form of handing over the keys to the city, have received comparatively little attention, even though they can also pose a significant threat to society.

While distinct, the risks presented by handing over the keys to the city resemble the more familiar moral hazard problem, since the propensity to delegate authority often exacerbates the initial problem. The study of handing over the keys to the city is unique, however, in focusing on crisis escalation, whereas moral hazard applies to a broader range of scenarios. Studying situations where the government might or has handed over the keys to the city therefore offers promising avenues for scholarly enquiry and policy engagement, drawing on and extending insights from the more established moral hazard literature (e.g., Kotowitz, 2018; Rowell & Connelly, 2012). We take up this task in the remainder of this paper.

Understanding what triggers handing over keys

Typology of crises triggering key distribution

Of course, in times of great crisis, and indeed throughout all decision-making processes, it is necessary for leaders to seek *some* external, expert assistance. As scholar James C. Scott has warned in his book *Seeing Like A State*, such technocratic fixes - particularly those based on technocratic ideologies - often lead to disaster when they override local knowledge and democratic processes (Scott, 1999). Our concerns align with this, highlighting the danger of outside powers being called upon during times of great crises because they may not be completely familiar with all the details of the problem themselves, or the possible, appropriate approaches. So how does one differentiate between leaders responsibly seeking expert insight and opinion to assist in government response to a crisis, and leaders “handing over the keys to the city”? We observe seven main factors that might suggest an approach is tipping from “taking normal advice” to “handing over the keys to the city”. These are Novelty, Uncertainty, Risk, Access, Legitimacy, Authority, and Resources, which we elaborate on here outlining the key trade-off being made in each instance.

1. **Novelty:** The solution may be completely untested in a particular (or any) deployment environment. Trade-off here is: *a precautionary approach vs proof of harm* (Sandin, 1999; Juma, 2016; Bodansky, 1991; Lo, 2009).
2. **Uncertainty:** The solution may not even be complete yet, taking a “we’ll start it anyway, and worry about the details later” approach. Trade-off here is: *Speed vs certainty* (Kay & King, 2020; Prigogine, 1997; Simon, 1977; Gigerenzer, 2008).
3. **Risk:** The solution may involve a significant change or re-structuring of how society operates, often over a very short timespan. Trade-off here is: *Self-regulation vs government regulation* (Culpepper, 2011; Carrigan & Coglianese 2016; Peltzman, 2021).
4. **Access:** Those offering the solution may require substantial access to information, systems, or other parts of government. Trade-off here is: *Guardrails vs autonomy* (Bakker et al., 2019; Egelhoff & Sen, 1992).
5. **Legitimacy:** Those offering the solution may request (phrased as “we need”) control of various significant mechanisms in government or society. This may be direct control (they do it themselves), or deferred or proxy-control (the government still runs things, but on the direct instruction of the solution provider). Trade-off here is: *Public authority vs private actors (liability/indemnity)* (Laufer, 2007; Benn et al., 2009; Reus-Smit, 2007) .
6. **Authority:** Those offering the solution may have no prior experience or expertise in high-level governance, and may indeed be completely untrusted entities. Trade-off here is: *Public (government) vs private authority - who gets to do what, and what are the limits?* (Riaz et al., 2016; Haynes et al., 2008; Littlefield & Quenette, 2007).
7. **Resources:** Those offering the solution may request vast (yet scarce) state resources to carry out their purported solution. This could be in terms of money, or other (tangible or intangible) resources, either given to them directly, or placed under their control for spending or use. Also, given that public resources are usually scarce, how they’re allocated is always a challenge, and triggering a bigger crisis could mean the need to allocate greater resources. Trade-off here is: *committing scarce public resources to a single untested solution vs preserving fiscal flexibility and capacity to respond to other urgent needs* (Stigler, 1971; Gershengorn, 2022; Boin et al., 2009).

The more of these trade-offs that are made in favour of the entity providing the (purported) solution, the closer the government is to handing over the keys to the city. This phenomenon has been widely studied by theorists like Giorgio Agamben, who show how emergencies can become the norm, gradually legitimising extraordinary transfers of power in democratic contexts (Agamben, 2005). More broadly, across types of political systems, this

phenomenon has also been referred to by scholars like Ferejohn and Pasquino (2004) as *the law of exception*. And while this is by no means a complete list of such issues and trade-offs, it does capture the key indicators for when “seeking help” tips over into “handing over the keys to the city”. There are, of course, several subtleties regarding what sort of crisis might trigger a government to hand over the keys to the city, the crisis threshold, and how this occurs in practice:

Firstly, a “crisis” need only be a perceived crisis, rather than a real, tangible one. It is merely sufficient for the leaders to perceive that some sort of crisis is, or will, happen. It may not be a universally-agreed crisis, but so long as leaders believe it to be one, that suffices to trigger a keys-handover response. As crisis management scholars like Arjen Boin and colleagues have shown in their 2009 book, the perception of a threat - rather than its objective scale - often drives the most consequential political decisions in times of uncertainty (Boin et al., 2009).

Secondly, leaders may genuinely have a mandate to hand over the keys to the city. There may be an event or circumstance that the public perceives to be a crisis (whether or not it is universally accepted as one), and an (upcoming) leader campaigning on a platform to address that crisis with a key-handover response (“We need drastic action!”) The public may vote in that leadership team, knowing full well what their subsequent response actions may be. So the electorate themselves can give a mandate to hand over the keys to the city, by voting in leaders who pledge to do so; not all such decisions to hand over the keys to the city will happen mid-term. Work by Steven Levitsky and Daniel Ziblatt document how voters can knowingly elect leaders who campaign on dismantling institutional checks, thereby democratically enabling undemocratic governance (Levitsky & Ziblatt, 2018).

In addition, as mentioned above, these “keys” need not be just for the main gate (i.e., for the political seat of central government), but can also be for all the other doors (i.e., for all the other administrative departments and processes). Handing over the keys to the city can mean that the solution provider takes over many, or even all, of the administrative processes and institutions within government. This can reach from the very top-level political decisions (such as what assets to tax), right down to the minutiae of government administration (such as what time of day to make pension payments), and everything in between. As Samuel Moyn has argued, this trend more recently has often been driven by technocratic ideologies that prioritise efficiency over accountability, allowing private or semi-private actors to subsume core functions of the state during crises (Moyn, 2023).

And finally, not only can the keys to the city be “handed over”, but they can also be taken away - sometimes from entities that had long held authority prior to the crisis, and sometimes from those who only just received them in the heat of the moment. This “redistribution” of keys is not uniform: taking them from institutions already viewed as ineffective is different from taking them back from actors who, just moments earlier, were seen as the solution. In both cases, the crisis drives a reordering of authority - removing those now seen as “in the way” and empowering those perceived as able to “get things done”.

A current example of government handing over the keys to the city, and one which touches on the three nuances mentioned above, is the recent introduction of the Department of Government Efficiency (DOGE)¹² in the US. Firstly, the crisis - excessive government spending - is a “perceived” crisis by the public, and by the current leaders, surrounding the efficiency of US government spending; it is not universally-agreed that this is indeed a full-blown crisis in need of such extreme measures. Secondly, the voting public in the US specifically granted the government a mandate to act on this, and hand over the keys to the city to DOGE and the external people involved in it. The current government campaigned on this very point, and won all three government branches in the 2024 US election (the presidency, congress, and the senate). And finally, DOGE was not just put in an advisory role; it was given access to vast swathes of the US federal administrative data, facilities, and institutions. The level of “success” of DOGE, measured by how much change it was able to impose, is yet to be established as its role is ongoing. Thus, the overall effectiveness of this key handover is not yet clear, and it may transpire that the key handover was not very effective. Moreover, these are ongoing events, and so the consequences of this handover are yet to be seen, and in particular the extent of any such secondary crisis. What is clear is that some elements of the keys to the city *were* handed over to DOGE; the complete extent of what has happened will only become apparent in the fullness of time.

Primary-secondary crisis pairs when handing over keys

What we have seen so far is that a scenario where a government hands over the keys to the city can involve two distinct but interlinked crises. The first is the *primary crisis*; a situation which the government or leadership feels must be resolved, but for which they have no solution to themselves. This is the “trigger” to hand over the keys to the city. The next is the *secondary crisis*; one that is caused almost entirely by the government “handing over the

¹² (Salvaggio, 2025) gives a decent summary of what had happened by early 2025.

keys” to some entity in the hope of solving the primary crisis. Of course, a primary crisis and subsequent key handover may not necessarily lead to a secondary crisis; our argument here focuses on the instances where this has happened, or might happen.

There are many different primary crises that may give rise to governments handing over the keys to the city, and for each such primary crisis, several secondary crises may emerge as a result. We outline a (non-exhaustive) selection of these here, in each case identifying a primary crisis and showing how it might escalate through a key-handover mechanism to a (or several) secondary crises. Though these examples of primary-secondary crisis pairs are (mostly) hypothetical, they are by and large inspired either by past crises that society has faced, or by potential crises that are currently being studied as known areas of concern to society.

- Primary crisis: Climate breakdown and subsequent societal crisis, caused by anthropogenic greenhouse gas emissions.

Secondary crisis: Bereft of ideas on how to manage society, the government may hand over the keys to the city to those from the AI/tech industry to take control of governance and reshape society. AI may then make large changes that are devastating and difficult to reverse (leading to a logistical or production crisis), or the government loses effective control of society as AI/tech is now “in charge” (leading to a political crisis). This handover could be abrupt, or it could happen gradually over time in an almost-irreversible manner; a phenomenon referred to as Gradual Disempowerment (Kulveit et al., 2025).

Secondary crisis: Confronted with the direct, tangible harms of climate breakdown, the government may attempt to reverse such breakdown by handing over the keys to the city to various geoengineering initiatives, such as Stratospheric Aerosol Injection (Tang & Kemp, 2021) or even to fossil fuel companies (Mavelli, 2025). Having never been tested at scale before, this intervention may have unintended, severe, adverse consequences on the environment, potentially causing even more damage to the planet. This could be from ecological blowback such as adverse changes to weather patterns or excess planetary cooling. Or significant drops in crop yields from decreased sun exposure, resulting in famine. Or any other of the myriad of potential harms that have been postulated (Tang & Kemp, 2021).

Secondary crisis: Convinced the geographic confines of the nation-state are no longer adequate, government may hand over the keys to the city to military leaders proposing an expansionist or colonising solution of relocating the population to a

different part of the world through military conquest, starting large international conflicts and wars (leading to a military crisis).

- Primary crisis: Financial crisis caused by a meltdown of significant parts of the economy due to sudden financial shifts.

Secondary crisis: Panicking that it will soon go broke, the government may hand over the keys to the city to economists to save or even resurrect the economy. This might lead to a significant reforming of society, how services are paid for by the government, and a restructuring of the overall relationship between the public and government. This may be to the detriment of the public, potentially in the form of austerity, which is hard to undo and creates long-term harm such as generations of poorly-educated citizens, long-term health issues, etc (leading to a social and political crisis).

Secondary crisis: Worried that orthodox solutions to financial crises will take too long, a government might hand over the keys to the city to those suggesting more extreme measures, such as the large-scale distribution of funds to the masses directly through the reserve bank rather than through fundraising or cost cutting (i.e., “printing money”). This may have hyper-inflationary effects (inflationary crisis), leading to extreme public discontent and panic, and then a rapid replacement of those governments by extremist politicians purporting to bring in “extreme measures” to solve the crisis (political crisis).

- Primary crisis: Ultra-high inflation that standard monetary policy is unable to dampen.

Secondary crisis: With the standard monetary tools proving totally ineffective, the government may hand over the keys to the city to technologists to roll out a new cryptocurrency for national use. A partial, or complete, failure of the new currency may occur. This could be through technical causes, whereby the system is compromised through “hacking” or some other digital workaround, rendering the currency useless. Or it could be through accessibility, whereby a large proportion of society is unable to access or make use of the new currency due to complexities in its use or the requirement to own expensive pieces of technology on which to use it. Or it could be through rejection, whereby the public simply refuses to use the currency and makes use of more elementary monetary systems such as bartering or precious metals (gold, silver, etc). The economy may then grind to a halt, as trade is far more difficult without an easy to use and widely adopted currency (leading to a financial, social, and ultimately political crisis).

- Primary crisis: Health or pandemic crisis caused by a sudden outbreak of disease that poses significant risk to life and/or incapacitates people for prolonged periods.

Secondary crisis: Facing a mass-mortality event, the government may hand over the

keys to the city to scientists, doctors, or epidemiologists to propose ways on how to prevent transmission and/or mortality. These measures may be rather extreme, modifying or curtailing the way people work, interact, and live their lives. Such sudden, extreme change may, over time, lead to severe dysfunction of society (leading to a political crisis).

Secondary crisis: Desperate for access to medical therapies, vaccines, or components that they cannot access and/or cannot afford, the government may hand over the keys to the city to those who propose plans to forcibly obtain (through military means) such items from other nations who do have a ready supply. This could lead to mass hardship and mass casualties because of warfare (leading to a conflict crisis).

- Primary crisis: AI crisis caused by automated AI systems taking over large parts of governments and/or industry in ways that cannot be “turned off”.

Secondary crisis: Powerless to control how society operates, the government may hand over the keys to the city to a powerful unaffected external nation state to fight or remove the AI, as all internal processes in the home nation are compromised. This may result in the external state taking full operational and political control of the existing state (leading to a geopolitical crisis).

Recognising what keys are distributed, and how

Identifying the types of keys being distributed

The phenomenon of “handing over the keys to the city” represents a significant challenge in contemporary governance, particularly when political leaders face severe, potentially catastrophic crises. As we have already outlined, under such extreme conditions, leaders may consider delegating extensive and unprecedented decision-making authority to external actors or entities that appear uniquely positioned to offer effective solutions.

To deepen our analytical clarity, this section links our seven main factors that signify a tipping point to handing over the keys to the city - novelty, uncertainty, risk, access, legitimacy, authority, and resources - to what we identify as seven different *types* of keys that can be handed over: *technological*, *political*, *legal*, *treasury*, *market*, *scientific*, and *moral* keys. Each key type embodies a particular mode of delegation of authority, with distinct implications for governance effectiveness, accountability, and resilience during crises. That is, each key type leads to some number of our tipping point factors, which we now identify.

Technological Keys: Novelty, Uncertainty and Risk.

Technological keys entail decision-makers granting significant operational authority to external technology providers with the expectation that innovative solutions will resolve crises rapidly and effectively. However, this delegation involves inherent challenges related to **novelty** and **uncertainty**. Unproven technologies or incomplete solutions may present unforeseen **risks**, potentially exacerbating rather than alleviating a crisis. For instance, reliance on AI systems to manage complex societal issues such as agricultural disruption or infrastructure collapse due to climate change introduces significant uncertainties. The UK's 2020 A-level grading algorithm scandal, where statistical methods were used to determine student grades illustrates how novel technological delegation can provoke public backlash and undermine trust when outcomes appear unjust or poorly understood (Adams, Weale, & Barr, 2020). Such novel approaches may lack sufficient testing under realistic conditions, thus posing significant risks to societal stability and public safety.

Political Keys: Risk and Access.

Political keys involve transferring decision-making powers to external political actors or international institutions when domestic governments consider their resources inadequate. This approach raises substantial concerns regarding **risk** and **access**. Delegating authority to external entities may lead to misalignments between short-term political solutions and long-term national interests, introducing risks to national sovereignty and stability. Additionally, these external entities may require extensive access to sensitive information, operational systems, or critical national infrastructure. Crises like that of Greece's sovereign debt crisis and acceptance into the European Central Bank and IMF sparked a deluge of debates in Greece around loss of political autonomy (Featherstone, 2011). In more stark cases, granting political access without adequate safeguards or oversight could result in vulnerabilities, undermining national security and potentially leading to exploitation by the entities entrusted with authority.

Legal Keys: Legitimacy and Authority.

Legal keys concern political leaders delegating responsibility for critical or politically sensitive decisions to judicial or quasi-judicial bodies, primarily to diffuse political liability and establish legitimacy in contentious scenarios. However, this form of delegation involves fundamental governance challenges related to **legitimacy** and **authority**. Judicial bodies or specialised tribunals typically possess defined remits and limited accountability to the electorate, potentially eroding democratic oversight when entrusted with expansive

governance powers. This raises concerns regarding the clarity of accountability, especially in cases of negative or unintended outcomes. Moreover, such transfers may blur the distinction between public and private governance roles, complicating the delineation of responsibility and potentially weakening public trust. Therefore, employing legal keys necessitates clear delineation of responsibilities and rigorous accountability mechanisms to preserve democratic legitimacy and public confidence.

Treasury keys: Resources.

Treasury keys involve the delegation of access to, and control over, significant amounts of public finances during crises. This would raise concerns stemming from their ability to redirect **resources**. In this model, governments entrust selected actors - such as central banks, international financial institutions, or private contractors - with the authority to mobilise and allocate emergency funds to manage the crisis. This delegation can involve direct bailouts, stimulus packages, or large-scale contracts to carry out recovery or stabilisation tasks. During the 2008 Global Financial Crisis, for example, governments channelled vast public funds through central banks and treasury departments to rescue major financial institutions and restore market confidence. Similarly, in other crises, private firms or NGOs may be granted control over aid disbursement, infrastructure investment, or service delivery. While intended to ensure rapid response and technical efficiency, the treasury keys scenario raises critical concerns about transparency, equity, and the long-term implications of concentrating financial power in actors not directly accountable to the public.

Market keys: Resources.

Market keys involve decision-makers granting certain control of, or access to, parts of the market to outside entities, raising concerns stemming from their direct access to **resources**. This would involve granting special market access or control to private actors, whose argument would be that they would provide more efficient solutions. This could be in the form of exclusive purchasing contracts, such as the sourcing of PPE stock during the COVID-19 pandemic.¹³ It could also be in the form of enhanced product or service development and sales, such as the accelerated approval processes and exclusive market access of vaccine manufacture in that same period. In these cases, we see the government getting into some sort of partnership with private enterprise, to bring products to market, and distribute them, quickly and widely.

¹³ As occurred with the former German health minister Jens Spahn, who is alleged to have “personally intervened heavily in mask purchases, giving preference to people close to him and disregarding needs assessments.” (Tagesschau, 2025).

Scientific Keys: Authority, Uncertainty and Risk.

Scientific keys involve the delegation of governance **authority** to experts or technocratic institutions, based on their specialised knowledge and capacity to understand, and potentially manage complex crises, informed by a combination of empirical data and/or theoretical modelling or simulation. Although expertise-driven governance may enhance the quality and objectivity of decision-making, it also introduces **uncertainties** and **risks**. Scientific knowledge, particularly during evolving crises, is frequently provisional or incomplete, meaning that decisions based upon expert advice may have unintended and far-reaching consequences. Consequently, relying exclusively on scientific expertise without incorporating robust oversight and precautionary measures may create vulnerabilities in governance arrangements.

Moral Keys: Authority and Legitimacy.

Moral keys refer to situations where political leaders delegate responsibility for justifying interventions to entities or individuals who claim ethical or moral **authority**, such as religious or philosophical figures. Delegation on moral grounds can secure public acceptance or compliance during extreme crises by framing interventions within widely recognised ethical principles. Historical examples of this can be found in political tendencies to reference the will of a divine figure or historical figures who have been almost deified in their own right – think the ancient Athenians’ consistent appeal to Apollo or contemporary nation-states citing *the will* of their founding fathers as two examples of this sort of appeal. However, this approach is contingent upon shared societal values and broad acceptance of the **legitimacy** of moral authority invoked. If the legitimacy of such authority is contested or perceived as self-serving, public trust may erode rapidly, undermining governance effectiveness and social cohesion. Hence, employing moral keys necessitates careful consideration of societal values, transparency in decision-making processes, and inclusive public deliberation to maintain credibility and legitimacy.

We summarise all these connections in the following diagram, so that one can easily and rapidly see which tipping points come from each key type:

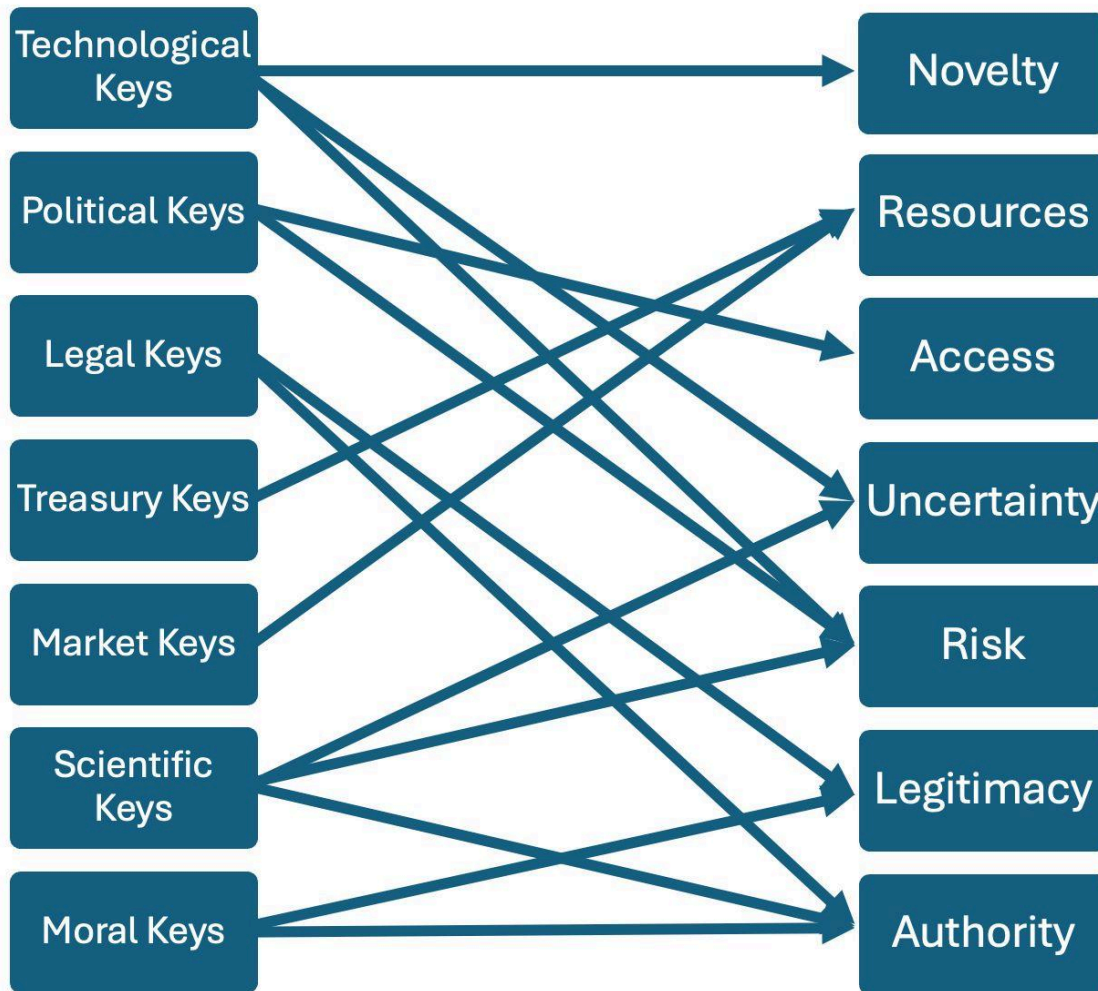


Figure 1: Key types, and their associated tipping point factors.

In summary, mapping the emerging governance issues of novelty, uncertainty, risk, access, legitimacy, authority and resources onto distinct dimensions of handing over the keys to the city highlights critical vulnerabilities and complexities in crisis-driven governance. Each form of delegation presents unique challenges that necessitate careful consideration by policymakers. Technological and political keys introduce significant risks associated with novelty, uncertainty, and external access to critical systems, requiring stringent oversight and precautionary measures. Legal keys present challenges to democratic legitimacy and accountability, necessitating clear boundaries and responsibilities for judicial or quasi-judicial actors. Treasury keys reveal the difficulties of allocating scarce resources to address crises, while market keys show the limits of claims to efficient solutions. Scientific and moral keys, while enhancing decision-making legitimacy through expertise or ethical justification, introduce risks associated with incomplete knowledge or contested moral authority, thus introducing uncertainty and risk, and so demanding comprehensive deliberative processes.

The extent to which keys can be distributed

In analysing how governments may hand over the keys to the city, we propose that the delegation of decision-making authority during crises may occur to differing *extents*, each with its own governance implications. These range from the retention of full control by public authorities, to varying degrees of delegation that may either be constrained or entirely unregulated. Namely, we propose four distinct extents of key distribution, ordered by how much power is ceded: *No keys*, *Controlled keys*, *Uncontrolled keys*, and *Public keys*. Such a typology not only illuminates the dynamics at play when governments confront existential threats but also underscores the balance between effective crisis management and the potential erosion of public trust and oversight.

In a “**no keys**” setting, the government retains complete control over decision-making processes, deliberately refusing to delegate any authority. This setting is typically observed in cases of extremely high-stakes crises - such as nuclear threats or acts of war - where the risks of delegation are deemed too significant. In these situations, the concentration of power is intended to ensure a unified, coherent response, thereby minimising the risk of mismanagement. However, the centralisation of decision-making may also lead to rigidity and a lack of adaptive capacity if the situation evolves unpredictably.

By comparison, a “**controlled keys**” setting involves a measured and deliberate delegation of authority, where specific responsibilities are transferred under strict guidelines. Under this arrangement, public authorities may, for example, delegate technical advisory roles to scientific experts during a pandemic. In such cases, decision-making power remains firmly with the political leadership, while experts are entrusted solely with providing specialised, data-driven advice. This approach seeks to leverage technical expertise without relinquishing ultimate control, thus maintaining accountability while enhancing the precision of the response. The controlled delegation ensures that it is circumscribed by clearly defined guardrails, thereby preserving the integrity of public decision-making processes.

The “**uncontrolled keys**” setting, in stark contrast, is characterised by the delegation of extensive, often unregulated authority. In these cases, the actors to whom power is transferred operate with minimal oversight, effectively assuming control over critical aspects of crisis management. A prominent example of this dynamic is observed in the financial sector, where the delegation of self-regulation to large financial institutions contributed to the near collapse of the global financial system in 2008. Uncontrolled delegation in such contexts can lead to significant systemic risks, as the absence of robust checks and balances may result in decisions that exacerbate, rather than mitigate, the crisis. This setting

highlights the inherent dangers of relinquishing too much control during periods of crisis and instability.

Finally, the “**public keys**” setting represents a situation in which the public is essentially left to manage the crisis independently, with minimal intervention from formal authorities. This model of governance is akin to an anarchic response, where citizens are forced to rely on their own resources and ingenuity in the absence of centralised guidance. The COVID-19 pandemic provided a striking illustration of this phenomenon, as, in some instances, governments were unable to coordinate a comprehensive response, leaving local communities to devise their own measures for safety and survival.¹⁴ While grassroots resilience can be admirable, the lack of coordinated action in such settings often leads to inconsistent, inequitable, and at times adverse outcomes.

While it is certainly worth understanding the various extents of key distribution given above when considering whether and how to hand over the keys to the city, our work here has focused on “uncontrolled keys” as the extent presenting the greatest risk. “No keys” or “controlled keys” extents, though not without their own shortcomings, still retain most of the control within the hands of the government. “Public keys”, whilst seemingly the most permissive in terms of who can do what, poses what we see as again a slightly lesser risk. When keys are distributed to that extent, there is no concentration of power in any one small group or organisation, but rather it is spread across all society. So while the overall response may be far from ideal, and produce rather inequitable outcomes for different parts of society, it does not carry with it the systemic risk present in the uncontrolled keys setting.

¹⁴ Such as efforts to produce and disseminate templates for 3D-printed face shields to the general public (Flanagan & Ballard, 2020).

Typology of “keys to the city” delegation extents

Table 1 below presents a typology illustrating various settings for handing over the keys to the city, giving examples and highlighting the associated governance implications.

Scenario	Description	Example	Implications
No Keys	Government retains full decision-making authority and responsibility, with no delegation.	In cases of nuclear threat or war, where centralised control is deemed essential.	Ensures unified response but risks rigidity and lack of adaptability during rapidly evolving crises.
Controlled Keys	Delegation of authority is circumscribed by strict guidelines regarding scope, method, and limits.	Delegating technical advisory roles to scientific experts during a pandemic, without conferring decision-making power.	Balances technical expertise with political oversight, preserving accountability while enhancing crisis response precision.
Uncontrolled Keys	Delegation occurs without sufficient constraints, granting extensive authority to external actors with minimal oversight.	The delegation of self-regulation authority to major financial institutions leading to the near collapse of the global financial system in 2008.	Can exacerbate systemic risks if unregulated, as decisions made without robust checks may worsen the crisis rather than mitigate it.
Public Keys	The public is left to manage the crisis independently, with little to no intervention or coordination from central authorities.	Instances during the COVID-19 pandemic where citizens had to rely on their own resources to ensure safety.	May foster community resilience; however, it often results in inconsistent, inequitable responses and can undermine overall crisis management effectiveness.

Table 1: The extent of key delegation, examples, and implications.

Our analysis so far suggests that, in times of (present, or upcoming) crisis where consideration is given to handing over the keys to the city, leaders may want to aim for a “controlled keys” setting. In the “no keys” setting, without seeking *any* external input, decision-makers and leaders may end up overly constrained, or bereft of sufficient detail and insight, to construct a good response to the crisis. In the “uncontrolled keys” setting, leaders might hand over far too much control and influence to external, under-qualified entities, who may be motivated by personal gain, and/or may lack sufficient experience or overall perspective to construct a balanced, comprehensive approach. The “public keys” setting is a setting of last resort, resulting in a chaotic response with minimal, if any, central oversight or control; something leaders are unlikely to ever willingly choose in advance. But if “controlled keys” is perceived to be the right approach, why do “uncontrolled keys” settings arise?

Put simply: there can be a sharp transition from a “no keys” setting to an “uncontrolled keys” one. A crisis may be brewing in the (geographic and/or temporal) distance, but leaders may be unaware of, or unwilling to accept, the fact that the crisis may reach them. Perhaps in some combination of preserving their own power, saving face, thinking they know better, or simply the (very human) response of irrational denial (“that will never happen to *us*”¹⁵), leaders tend to hang on to a “no keys” setting for too long. It is only when they make the (very late) calculation that the crisis *will* impact them, and moreover will be a *significant impact*, that they then resort to handing out keys.¹⁶ By this time, the opportunity for intervention by external entities in a “controlled keys” setting has completely passed, as the magnitude and urgency of the crisis means small, targeted, well thought out and robustly debated interventions can now no longer make as much of a meaningful impact, and political panic sets in at this moment. As such, we see the primary cause of an “uncontrolled keys” scenario to be a reluctance to transition to a “controlled keys” scenario earlier on. A stitch in time can save many more than nine.

But why hand over keys at all? If the government is unable to properly assess, evaluate, and ultimately respond to the crisis at hand in an adequate way, why would they not simply resort

¹⁵ As so many world leaders remarked in the early days of COVID-19, when some nations were suffering terribly with infection and hospitalisation rates but nations which were unaffected (yet) simply denied the crisis could reach them (Dyer, 2023).

¹⁶ There is footage available of beachgoers watching an incoming Tsunami (which looks like a normal wave), and not taking any action while the wave is far out at sea. It is only when they can see large boats being flipped like pancakes, and thus realise that it is *unavoidable* that the wave will reach them with catastrophic consequences, do they *start* to take evasive action. See, for example, CSV(2015, minutes 27:52 - 31:12).

to “doing nothing”? This is where the desire for human intervention; both by leadership (“we should be doing something”) and by the public (“*you* should be doing something”) comes into play. Sitting back and doing nothing is simply not conducive to the human condition. It may well be the best option, but the “desire to do *something*” trumps that, even though it may imperil the situation and make it far worse.¹⁷ But in doing something we should also be cognisant of the limits of our knowledge on very complex issues, of which the phenomenon of handing over the keys to the city is a vivid example. As argued in (Huemer, 2012), just as medical interventions in the 18th century could often do more harm than good on account of the physicians possessing nowhere near sufficient understanding of the illness at hand, so too might political “interventions” cause more harm than good on account of experts not properly understanding the situation at hand.

Conclusion

Summary of analysis

In this manuscript we have formalised the concept of “Handing over the keys to the city” as occurring when a government delegates some aspect(s) of authority or control to an external entity in the face of a crisis it is unable to deal with itself. We identified seven factors that may shape how governments might, or are likely to, reach a tipping point and hand over the keys to the city: Novelty, Uncertainty, Risk, Access, Legitimacy, Authority, and Resources. Handing over the keys to the city involves up to two distinct but interlinked crises: the primary crisis (which is necessarily present) that triggers the key handover, and a (potential) secondary crisis that may arise from this handover. The pairings are non-unique; a given primary crisis could lead to different, or even multiple, secondary crises (or none at all, in an ideal situation).

We also identified seven different key types that can be handed over: Technological Keys, Political Keys, Legal Keys, Treasury Keys, Market Keys, Scientific Keys, and Moral Keys. Each of these connects to some number of the seven tipping point factors above. Moreover, the extent to which keys can be handed over can also be measured, and is dynamic as a crisis evolves. These are ordered as: No Keys, Controlled Keys, Uncontrolled Keys, and

¹⁷ Medical intervention during the middle ages was often the most effective way to harm or kill the patient (Huemer, 2012). While there was an overwhelming desire to “help”, with various forms of medicine, treatment, surgery, etc, these often did far more harm than good. In many such scenarios, giving the patient a glass of water, a piece of bread, and a safe place to rest, was probably the best available option.

Public Keys. As the crisis worsens, the government may increase the extent to which it hands over keys, and engage in an unwanted “jump” from a no keys situation (trying to preserve its own power), to an uncontrolled keys situation (incited by panic at a crisis that has grown out of control).

Combining the above two concepts, of key type and the extent of delegation, gives the following useful table which can be filled out to help decision makers quickly summarise the various types, and extents, to which the keys to the city are being handed over:

Key type	Extent of delegation			
	No keys	Controlled keys	Uncontrolled keys	Public keys
Technological				
Political				
Legal				
Treasury				
Market				
Scientific				
Moral				

Table 2: Blank proforma to enter key type and the extent of delegation

While it is not a given that a primary crisis, and subsequent handing over of the keys to the city, will lead to a secondary crisis, such a handover can certainly open up the possibility of this occurring. Our analysis points to the third extent of key handover, uncontrolled keys, as being the most dangerous and presenting the most significant systemic risk to society.

Future research

We have written this paper primarily to raise awareness of a potentially significant issue in crisis governance: handing over the keys to the city. We have focused our attention on what the problem might be, and how it might happen. Future work could therefore aim to explore how to detect and stop the problem from emerging in the first place. We have produced visualisations and tools, such as Figure 1 and Table 2, to assist with initial detection. And while our mapping of key types to the corresponding tipping point factors (Figure 1) is well-reasoned, additional connections could potentially be identified, and thus this could certainly be studied.

Regarding deeper detection, one could start with our seven factors giving tipping points to potential key handover scenarios, and investigate how to weave those into crisis analysis frameworks, so as to flag early on that the handing over of the keys to the city may be about to happen, or is happening. One could also explore further crisis pairs, both hypothetical and historic, to start producing collections of likely scenarios for decision makers to be aware of.

Regarding mitigation, one could investigate ways of measuring how far a handover of keys to the city has progressed along our scale of the four delegation extents (see Table 2), with the aim of confining such scenarios to either a “no keys” or “controlled keys” handover, and preventing the unwanted jump from “no keys” to “uncontrolled keys” (or beyond) that we have identified as being both problematic and somewhat likely. Policy makers and politicians should be acutely aware of this, and perhaps be more willing to hand over “controlled keys” to prevent a crisis spiraling out of control and leading to a (panic-induced) handing over of “uncontrolled keys”. One could also investigate mechanisms to constrain key handovers to a small number of the key types that we have identified, thus preventing external parties from having access to too many different parts of governance simultaneously.

This is by no means a full list of future work in this area, but does give some immediate, concrete ways in which to make tangible progress that could ultimately lead to a prevention of, or at the very least mitigation of, the harmful effects of handing over the keys to the city.

Final remarks

In conclusion, the problem of “handing over the keys to the city”, as conceptualised through this interdisciplinary framework, underscores the complexity and gravity of governance decisions made during crises. Delegating authority under crisis conditions is neither straightforward nor without considerable risk. Policymakers must therefore approach these key handover scenarios with acute caution, balancing urgent response pressures with long-term democratic oversight, legitimacy, and societal resilience. Future scholarship and policy debates should continue to scrutinise the conditions under which the delegation of authority occurs, seeking solutions that reinforce rather than weaken governance structures and public trust in the face of complex, existential challenges.

Bibliography

- Adams, R., Weale, S., & Barr, C. (2020, August 13). A-level results: almost 40% of teacher assessments in England downgraded. *The Guardian*.
<https://www.theguardian.com/education/2020/aug/13/almost-40-of-english-students-have-a-level-results-downgraded>
- Agamben, G. (2005). *State of exception.: Translated by Kevin Attell*. University of Chicago Press.
- Baker, S. (2021, September 13). Spiegelhalter: Scientists straying too far into policy advocacy. *Times Higher Education*.
<https://www.timeshighereducation.com/news/spiegelhalter-scientists-straying-too-far-policy-advocacy>
- Bakker, M. H., Kerstholt, J. H., van Bommel, M., & Giebels, E. (2019). Decision-making during a crisis: the interplay of narratives and statistical information before and after crisis communication. *Journal of Risk Research*, 22(11), 1409–1424.
<https://doi.org/10.1080/13669877.2018.1473464>
- Beck, U. (1992). *Risk society: Towards a new modernity*. Sage Publications.
- Benn, S., Brown, P., & North-Samardzic, A. (2009). A commentary on decision-making and organisational legitimacy in the Risk Society. *Journal of Environmental Management*, 90(4), 1655–1662. <https://doi.org/10.1016/j.jenvman.2008.05.021>
- Bodansky, D. (1991). Law. *Environment: Science and Policy for Sustainable Development*, 33(7), 4–44. <https://doi.org/10.1080/00139157.1991.9929978>
- Boin, A., Hart, P. 't, & McConnell, A. (2009). Crisis exploitation: political and policy impacts of framing contests. *Journal of European Public Policy*, 16(1), 81–106.
<https://doi.org/10.1080/13501760802453221>
- Bostrom, N. (2002). Existential Risks: Analyzing human extinction scenarios and related hazards. *Reprinted from: Journal of Evolution and Technology*, 9.
<https://nickbostrom.com/existential/risks.pdf>

Carrigan, C., & Coglianese Cary (2016). Capturing regulatory reality: Stigler's the theory of economic regulation. *University of Pennsylvania Institute for Law & Economics Research Paper*, 16-15.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2805153

Classic Christian Video [CSV] (2015). Tsunami - caught on camera [full program] 12/26/2004 [Video]. *YouTube*.

<https://www.youtube.com/watch?v=llSqzpsuq7c&t=1672s>

Culpepper, P. D. (2011). *Quiet politics and business power: Corporate control in Europe and Japan*. Cambridge University Press.

Dalgaard, C. J., Kaarsen, N., Olsson, O., & Selaya, P. (2022). Roman roads to prosperity: Persistence and non-persistence of public infrastructure. *Journal of Comparative Economics*, 50(4), 896-916. <https://doi.org/10.1016/j.jce.2022.05.003>

Dawson, M., & Brooks, B. J. (1999). *The Esso Longford Gas Plant Accident*. Report of the Longford Royal Commission (No. 61 - Session 1998 - 99).

<https://web.archive.org/web/20221111015445/https://www.parliament.vic.gov.au/papers/govpub/VPARL1998-99No61.pdf>

Dyer, C. (2023). Covid-19: Whitehall chaos and misplaced confidence undermined UK's response, inquiry hears. *The British Medical Journal*, p2576.

<https://doi.org/10.1136/bmj.p2576>

Egelhoff, W. G., & Sen, F. (1992). An information-processing model of crisis management. *Management Communication Quarterly*, 5(4), 443–484.

<https://doi.org/10.1177/0893318992005004003>

Featherstone, K. (2011). The JCMS annual lecture: The Greek sovereign debt crisis and EMU: A failing state in a skewed regime. *Journal of Common Market Studies*, 49(2), 193–217. <https://doi.org/10.1111/j.1468-5965.2010.02139.x>

Ferejohn, J., & Pasquino, P. (2004). The law of the exception: A typology of emergency powers. *International Journal of Constitutional Law*, 2(2), 210–239.

<https://doi.org/10.1093/icon/2.2.210>

- Flanagan, S. T., & Ballard, D. H. (2020). 3D printed face shields: a community response to the COVID-19 global pandemic. *Academic radiology*, 27(6), 905.
<https://doi.org/10.1016/j.acra.2020.04.020>
- Foucault, M. (2020). *Society must be defended: Lectures at the College de France, 1975-76*. Penguin Classics.
- Feehan, J., & Apostolopoulos, V. (2021) Is COVID-19 the worst pandemic? *Maturitas*, 149, 56–58. <https://doi.org/10.1016/j.maturitas.2021.02.001>
- Funtowicz, S., Ravetz, J. (September 1993). Science for the post-normal age. *Futures*, 25(7), 739–755. [https://doi.org/10.1016/0016-3287\(93\)90022-L](https://doi.org/10.1016/0016-3287(93)90022-L)
- Gellman, B., & Poitras, L. (2013, June 7). U.S., British intelligence mining data from nine US Internet companies in broad secret. *The Washington Post*.
https://www.washingtonpost.com/investigations/us-intelligence-mining-data-from-nine-us-internet-companies-in-broad-secret-program/2013/06/06/3a0c0da8-cebf-11e2-8845-d970ccb04497_story.html?hpid=z1
- Gershengorn, H. B. (2022). Inequitable resource allocation amidst a pandemic - A arisis within a crisis. *JAMA Network Open*, 5(3), e221751.
<https://doi.org/10.1001/jamanetworkopen.2022.1751>
- Gigerenzer, G. (2008). *Rationality for mortals: How people cope with uncertainty*. Oxford University Press.
- Golden, G. K. (2013). *Crisis management during the Roman Republic: the role of political institutions in emergencies*. Cambridge University Press.
- Greenwald, G., & Ackerman, S. (2013, June 27). NSA collected US email records in bulk for more than two years under Obama. *The Guardian*.
<https://www.theguardian.com/world/2013/jun/27/nsa-data-mining-authorised-obama>
- Hamer, A., Lane, S., & Mahony, M. (2002). The role of introduced mosquitofish (*Gambusia holbrooki*) in excluding the native green and golden bell frog (*Litoria aurea*) from original habitats in south-eastern Australia. *Oecologia*, 132(3), 445–452.
<https://doi.org/10.1007/s00442-002-0968-7>

- Harari, Y. N. (2018). *21 lessons for the 21st century*. Random House.
- Haynes, K., Barclay, J., & Pidgeon, N. (2008). The issue of trust and its influence on risk communication during a volcanic crisis. *Bulletin of Volcanology*, 70(5), 605–621.
<https://doi.org/10.1007/s00445-007-0156-z>
- Huemer, M. (2012). In praise of passivity. *Studia Humana*, 1(2), 12–28.
<https://spot.colorado.edu/~huemer/papers/passivity.htm>
- Jasanoff, S., & Kim, S.-H. (Eds.) (2015). *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power*. University of Chicago Press.
- Juma, C. (2016). *Innovation and Its Enemies*. Oxford University Press.
<https://doi.org/10.1093/acprof:oso/9780190467036.001.0001>
- Kay, J., & King Mervyn. (2020). *Radical uncertainty: Decision-making beyond the numbers*. W. W. Norton & Company.
- Kemp, L. (2021, April 28). The 'stomp reflex': When governments abuse emergency powers. *BBC*.
<https://www.bbc.co.uk/future/article/20210427-the-stomp-reflex-when-governments-abuse-emergency-powers>
- Kotowitz, Y. (2018). Moral mazard. In: *The New Palgrave Dictionary of Economics* (pp. 9131–9136). Palgrave Macmillan, London.
https://doi.org/10.1057/978-1-349-95189-5_1219
- Kulveit, J., Douglas, R., Ammann, N., Turan, D., Krueger, D., & Duvenaud, D. (2025). Gradual disempowerment: Systemic existential risks from incremental AI development. *arXiv preprint arXiv:2501.16946*.
<https://doi.org/10.48550/arXiv.2501.16946>
- Laufer, R. (2007). Crisis management and legitimacy: Facing symbolic disorders. In C. Pearson, C. Roux-Dufort, & J. Clair (Eds.), *International Handbook of Organizational Crisis Management* (pp. 25–84). SAGE Publications, Inc.
<https://doi.org/10.4135/9781412982757.n2>

- Levitsky, S., & Ziblatt, D. (2018). *How Democracies Die*. Crown.
- Littlefield, R. S., & Quenette, A. M. (2007). Crisis leadership and hurricane katrina: The Portrayal of Authority by the Media in Natural Disasters. *Journal of Applied Communication Research*, 35(1), 26–47.
<https://doi.org/10.1080/00909880601065664>
- Lo, C.-F. (2009). Risks, scientific Uncertainty and the approach of applying precautionary principle. *Medicine and Law*, 28(2), 283–300.
- Manheim, D. (2020). The fragile world hypothesis: Complexity, fragility, and systemic existential risk. *Futures*, 122, 102570. <https://doi.org/10.1016/j.futures.2020.102570>
- Mavelli, L. (2025). ‘With great power comes great responsibility’: climate change and the politics of simulation of the oil industry. *Environmental Politics*, 1-22.
<https://doi.org/10.1080/09644016.2025.2497217>
- Moyn, S. (2023). *Liberalism against Itself*. Yale University press.
<https://doi.org/10.2307/jj.5666742>
- Müller, D., & Chiodo, M. (2023). Mathematical artifacts have politics: The journey from examples to embedded ethics. *ArXiv:2308.04871*.
<https://doi.org/10.48550/arXiv.2308.04871>
- Office of the Inspector General (2009, March 24). *NSA secretary general report 2009. ST-09-0002*. Working Draft. National Security Agency, Central Security Service.
https://www.scribd.com/document/434776504/NSA-Secretary-General-Report-2009#rom_embed
- Ó hÉigearthaigh, S. (2025). The most dangerous fiction: The rhetoric and reality of the AI race. *SSRN Preprint*. <http://dx.doi.org/10.2139/ssrn.5278644>
- Peltzman, S. (2021). Stigler’s theory of economic regulation after fifty years. *University of Chicago Coase-Sandor Institute for Law & Economics Research Paper*, 925.
<https://doi.org/10.2139/ssrn.3785342>
- Prigogine, I. (1997). *The end of certainty*. Free Press.

- Reed, B. C. (2014). *The history and science of the Manhattan Project*. Heidelberg: Springer.
<https://doi.org/10.1007/978-3-662-58175-9>
- Reus-Smit, C. (2007). International crises of legitimacy. *International Politics*, 44(2-3), 157–174. <https://doi.org/10.1057/palgrave.ip.8800182>
- Riaz, S., Buchanan, S., & Ruebottom, T. (2016). Rhetoric of epistemic authority: Defending field positions during the financial crisis. *Human Relations*, 69(7), 1533–1561.
<https://doi.org/10.1177/0018726715614385>
- Rowell, D. and Connelly, L.B. (2012), A history of the term “moral hazard”. *Journal of Risk and Insurance*, 79, 1051-1075. <https://doi.org/10.1111/j.1539-6975.2011.01448.x>
- Salvaggio, E. (2025, February 9). Anatomy of an AI coup. *Tech Policy Press*.
<https://www.techpolicy.press/anatomy-of-an-ai-coup/>
- Sandin, P. (1999). Dimensions of the precautionary principle. *Human and Ecological Risk Assessment: An International Journal*, 5(5), 889–907.
<https://doi.org/10.1080/10807039991289185>
- Sasse, T., Haddon, C., & Nice, A. (2020, December 18). *Science advice in a crisis*. Institute for Government.
<https://www.instituteforgovernment.org.uk/publication/report/science-advice-crisis>
- Schmitt, C. (2005). *Political theology: Four chapters on the concept of sovereignty*. Chicago University Press.
- Scott, J. C. (1999). *Seeing like a state: How certain schemes to improve the human condition have failed*. Yale University Press.
- Sears, N. A. (2020). Existential security: Towards a security framework for the survival of humanity. *Global Policy*, 11(2), 255–266. <https://doi.org/10.1111/1758-5899.12800>
- Simon, H. A. (1977). The logic of heuristic decision making. In R. S. Cohen, M. W. Wartofsky, & H. A. Simon (Eds.), *Boston Studies in the Philosophy of Science. Models of*

- Discovery (Vol. 54, pp. 154–175). Springer Netherlands.
https://doi.org/10.1007/978-94-010-9521-1_10
- Stigler, G. J. (1971). The theory of economic regulation. *The Bell Journal of Economics and Management Science*, 2(1), 3. <https://doi.org/10.2307/3003160>
- Stiglitz, J. E. (2010). *The Stiglitz report: Reforming the international monetary and financial systems in the wake of the global crisis*. The New Press.
- Tang, A., & Kemp, L. (2021). A fate worse than warming? Stratospheric aerosol injection and global catastrophic risk. *Frontiers in Climate*, 3, Article 720312.
<https://doi.org/10.3389/fclim.2021.720312>
- Tagesschau (2025, July 8). Spahn, Sudhof und die Masken - worum geht es? *Tagesschau*.
<https://www.tagesschau.de/inland/innenpolitik/maskenbeschaffung-corona-spahn-sudhof-faq-100.html>
- Tooze, A. (2018). *Crashed: How a decade of financial crises changed the world*. Penguin Books.
- Turner, V. W. (1974). *Dramas, fields, and metaphors: Symbolic action in human society*. Cornell University Press.
- Turvey, N. (2013, November 7). Everyone agreed: cane toads would be a winner for Australia. *The Conversation*.
<https://theconversation.com/everyone-agreed-cane-toads-would-be-a-winner-for-australia-19881>
- Winner, L. (1980). Do artifacts have politics? *Daedalus*, 109(1): 121–136.