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Resilience in crisis and emergency management: the role of performance audit☆

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ABSTRACT

Public sector organisations (PSOs) operate in an environment of unprecedented complexity and volatility, facing challenges such as natural disasters, financial and economic fluctuations, and social issues. These complexities strain their capacity to deliver services effectively. Performance audits assess PSOs' ability to anticipate, plan for, sustain, and recover from crises, strengthening resilience by systematically identifying vulnerabilities and enhancing adaptability. The paper examines PSOs' actions in Australia and New Zealand during crises and analyses performance audit evaluations and recommendations. Although PSOs responded to the crises, the paper identifies several deficiencies in governance and accountability, procurement and financial management, data integrity and information management, network building, and operational efficiency. Strengthening these areas is essential to enhance organisational resilience, preparedness, and recovery capacity in future crises.

1. Introduction

Over the past decade, the volatility of our natural, economic, and social systems has increased significantly, making it more difficult for organisations to respond effectively. Organisational resilience—the ability to absorb shocks, develop tailored responses, and engage in transformative activities—has become essential to thrive amid disruptions that could threaten organisational survival (Lengnick-Hall et al., 2011). Crises such as global pandemics, climate-induced natural disasters, geopolitical instability, and cyber threats further heighten unpredictability. Public sector organisations (PSOs) operate in an environment of unprecedented complexity and volatility. They face numerous challenges from natural disasters, financial and economic fluctuations, and social issues, all of which test their capacity to deliver services effectively (Bracci et al., 2015). During these volatile circumstances, PSOs are expected to withstand and adapt to unexpected shocks, thereby maintaining public trust and confidence in their operations. As a result, there is growing focus on resilience within PSOs and on understanding what constitutes effective and acceptable governance.

The concept of resilience has gained particular significance in contemporary safety science literature. In safety science, resilience entails sustaining safe performance by anticipating, monitoring, responding, recovering, and learning (Madni & Jackson, 2011; Tian & Dai, 2022; Woods, 2015; Bergström et al., 2015; Righi et al., 2015). Key safety-related resilience concepts and theories, such as resilience engineering, socio-technical systems thinking, adaptive capacity, absorptive capacity, recoverability, and socio-ecological ideas, centre on dynamic adaptation and re-organisation while retaining core function (e.g. Woods, 2015; Bergström et al., 2015; Righi et al., 2015; Walker et al., 2004). The safety science perspective complements public administration and accounting approaches to organisational resilience.

Organisational resilience—the capacity to anticipate, absorb, adapt to, and recover from shocks—has become essential in public administration (Duit, 2016; Parker, 2024). It is multifaceted, involving various dimensions and features (Linnenluecke, 2017). Resilience, once regarded as peripheral, is now a fundamental element of effective governance (Caffrey et al., 2019; Duit, 2016). For PSOs, as they face pressures across coordination, service delivery, and governance, a robust framework is essential to assess performance and enhance resilience. FitzGerald et al. (2021) and Palmi et al. (2018) also indicate that further research is needed on embedding performance audits within the PSO resilience framework. Integrating resilience criteria into audit methodologies allows performance audits to measure, monitor, and sustain resilience, transforming it into a concrete organisational capability.

Prior studies have examined resilience from multiple perspectives, including crisis and disaster management (Boin & Lodge, 2016), the

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transformational traits of resilient organisations (Fitzgerald & Lupton, 2015), and resilience as a strategic level of change (Rochet et al., 2008). Some emphasise anticipation and risk awareness (Lengnick-Hall & Beck, 2005; Somers, 2009; Linnenluecke & Griffiths, 2013; Boin & Lodge, 2016) or situation awareness (McManus et al., 2007), and others treat resilience as a process of learning and adaptation rather than merely recovery (Bracci & Tallaki, 2021). However, limited attention has been paid to PSOs' resilience during natural disasters and to the mechanisms underlying PSOs' resilience capacities in response to external shocks.

Performance auditing (PA) provides an independent, objective, and reliable evaluation of whether government activities follow the principles of economy, efficiency, and effectiveness (INTOSAI, 2019). Performance audits systematically identify vulnerabilities, improve adaptability, and assess PSOs' capacity to anticipate, plan for, withstand, and recover from crises, thereby boosting resilience. Although these audits can inform resilient practices and strategies, the accounting literature has not fully recognised their potential (Rana et al., 2022). Despite their significant role, the relationship between performance auditing and organisational resilience remains under-researched in both academic and professional areas. This study provides a comprehensive analysis of resilience concepts within performance auditing and strengthens the link between PA and PSO resilience. We specifically evaluate PSOs in Australia and New Zealand. The Australian National Audit Office (ANAO) and the New Zealand Office of the Auditor-General (OAG) conduct performance audits to deliver independent, evidence-based assessments of PSOs' efficiency, effectiveness, and economy for parliaments and the public. The three Es of performance auditing—Economy, Efficiency, and Effectiveness—are defined in the International Standards of Supreme Audit Institutions (ISSAI) 300 and 3000 standards (INTOSAI, 2019). Economy audits scrutinise procurement costs in PSOs, and efficiency gauges how resources are utilised to achieve results. Finally, effectiveness evaluates the degree to which a disaster relief agency meets its objectives—such as timeliness and quality of aid—against established benchmarks.

Building on existing literature, we examine the role of performance audits in PSOs by analysing audits conducted by the Australian National Audit Office on the Black Summer Bushfires occurred in 2019–2020 and COVID-19 (2020–2022), as well as reports by the New Zealand Office of the Auditor General (OAG) on the 2010-2011 Canterbury Earthquake and COVID-19 (2020–2022). These analyses evaluate the effectiveness of PSOs' resilience measures. Based on our review of the key findings and recommendations of these audits relating to PSO resilience, we explore two research questions.

RQ1: What role does performance auditing play in public sector organisations?
RQ2.1: What recurring vulnerabilities do ANAO and OAG performance audits expose in public sector organisations' management of disruption?
RQ2.2: To what extent do these audits engage with resilience as a systemic organisational capability, rather than framing it through a compliance and accountability lens?

Resilience theory suggests that systems can absorb shocks, reorganise, and continue functioning without losing their core purpose or identity (Plimmer et al., 2022). In public administration, this includes maintaining operational continuity and strategically using accounting information to support decision-making, resource allocation, and accountability during crises. Gibson and Tarrant's (2010) multidimensional resilience model, known as 'the herringbone model,' emphasises that organisations possess a range of capabilities and activities that enhance resilience. It also highlights that organisational characteristics influence how these capabilities are deployed and how effectively they contribute to resilience.

Drawing on resilience theory and the herringbone model, we examine PSOs' organisational characteristics, capabilities, and activities, focusing on their adaptive, learning, and transformative processes. We then explore how PAs foster adaptive governance, innovation, and stakeholder trust. Viewing PAs as vital tools for assessing PSO resilience and highlighting strengths and vulnerabilities in financial governance under pressure, we analyse PA reports on the effectiveness of PSO capabilities and activities, as well as their adaptive, learning, and transformative processes. This study contributes to theory and practice by showing how performance auditing can strategically enhance PSO resilience.

The paper is organised as follows: Section 2 reviews literature on resilience in PSOs and performance audits. Section 3 covers legislative and strategic frameworks for PSO resilience in Australia and New Zealand. Section 4 discusses the theoretical basis of public sector resilience. Section 5 examines government initiatives and resilience measures in response to natural disasters and pandemics. Section 6 analyses performance audits' assessments of these measures. Section 7 presents findings from audits conducted by the ANAO and the OAG. Section 8 discusses key themes in performance audits, and Section 9 concludes by discussing the study's limitations and future research directions.

2. Literature review

The literature (e.g., Barbera et al., 2017) examines resilience from both engineering and ecological perspectives. The engineering view focuses on the ability to revert to a perceived "normal" state, whereas the ecological perspective emphasises recovery through rescue, infrastructure restoration, and market rebuilding after a crisis. The latter view also recognises the potential to shift into alternative stability domains, depending on an organisation's strengths and weaknesses and its capacity to evaluate resilience strategies (Lee et al., 2013). Organisational resilience goes beyond being a mere capability; it embodies a philosophy that enables organisations to navigate adverse, complex, and uncertain situations responsibly and proactively (Tengblad & Oudhuis, 2018).

Researchers have studied resilience in public administration since the late 1980s (Duit, 2016). PSOs must be resilient to adapt to economic, environmental, and social disruptions (Shaw & Maythorne, 2013). Stark and Taylor (2014) note that bureaucratic values rooted in efficiency and procedural rationality, particularly during fiscal austerity, significantly shape organisational resilience. Bracci and Tallaki (2021) emphasise that resilience is crucial for maintaining service delivery amid declining resources and rising demand. Consequently, PSOs need a clear understanding of their environments and vulnerabilities. However, few studies have examined PSOs' crisis responses.

Previous studies define resilience as anticipation, risk awareness (Lengnick-Hall & Beck, 2005; Somers, 2009; Linnenluecke & Griffiths, 2013; Boin & Lodge, 2016), or situation awareness (McManus et al., 2007). It is a transformative process of learning and strengthening, not merely a return to pre-crisis conditions (Bracci & Tallaki, 2021). During crises, organisations can manage change strategically and build resilience by resisting shocks, adapting to new circumstances, and learning from them (Rochet et al., 2008; Parker, 2024; Wang et al., 2020). For PSOs, decision support systems facilitate information flow, helping to address challenges and reduce risks. Building organisational networks and integrating adaptive learning, as Comfort (2012) emphasises, increase flexibility and robustness. Similarly, strong communication channels are linked to innovation and resilience. Effective leadership enables continuous vulnerability assessment and responsive action, fostering resilient behaviour in crises. Boin and Lodge (2016) advocate incorporating crisis and disaster management into public administration research to improve risk management, preparedness, response, and recovery skills (Drennan et al., 2014).

Current research emphasises the importance of managing gradual changes that can undermine resilience (Duit, 2016). PSOs should proactively recognise opportunities during disruptions and adapt or reinvent strategies before circumstances force them to do so (Barbera et al., 2017). To enhance resilience, performance audit evaluation methods

and stakeholder communication strategies are essential for identifying resilience-building activities. These tools provide independent assessments of how PSOs manage disruptions and implement resilience measures effectively. Rana et al. (2022) note that audit practices have significant yet underexplored potential to inform and shape resilient strategies within the accounting literature.

Performance auditing, once regarded as a minor tool of public management has developed into a valuable practice (Pollitt et al., 1999). By the late 1990 s, it was well established, with dedicated procedures and personnel, in countries including Australia, Canada, Finland, France, the Netherlands, New Zealand, Norway, Sweden, the UK, and the USA. Today, performance audits are central to government activities in many democratic welfare states and support accountability within democratic governance. Approaches include reviews of management systems, performance procedures, policy audits, management representations, comparative performance audits, and quality audits.

3. Frameworks of resilience in public sector organisations in Australia and New Zealand

Public sector organisations in Australia and New Zealand face political oversight, legislative constraints, and public expectations that limit their flexibility. Our study examines the resilience of these PSOs within these regulatory and strategic contexts. Australia's modern resilience journey began in February 2011, when the Council of Australian Governments (COAG) endorsed the National Strategy for Disaster Resilience (NSDR). This marked a significant policy shift from traditional emergency management towards a model emphasising 'shared responsibility' (COAG, 2011), viewing resilience as a collective social effort rather than merely a government service. To facilitate this shift, the National Partnership Agreement on Natural Disaster Resilience was established. A decade later, following the 2015 adoption of the UN Sendai Framework for Disaster Risk Reduction (UNISDR, 2015), Australia launched the National Disaster Risk Reduction Framework (NDRRF) in 2019, marking a key development in its resilience policy (DRFA, 2019).

Under the Public Governance, Performance and Accountability Act 2013, building resilience is essential to the efficient and ethical use of public resources. The Act emphasises not only efficiency, effectiveness, and economy but also ethics, defining ethical resource use as a duty of care to anticipate risks and act with foresight to protect citizens and assets (PGPA, 2013). The Australian Government Crisis Management Framework (AGCMF) supports the nation's 'all-hazards' approach, guiding responses to crises such as natural disasters, pandemics, terrorism, and cyber incidents. During COVID-19, the $1 billion Disaster Ready Fund (DRF), established under the Disaster Ready Fund Act 2019, signalled a policy shift towards proactive risk reduction (DRFA, 2019).

In New Zealand, *the Civil Defence Emergency Management (CDEM) Act*, which took effect on 1 December 2002, replaced the Civil Defence Act 1983 and laid the foundation for modern emergency management. The Act integrated the internationally recognised "4Rs"—Reduction, Readiness, Response, and Recovery—as its core framework, emphasising proactive hazard management rather than a reactive approach. It introduced a decentralised governance model, requiring 16 regional CDEM Groups to coordinate local emergency efforts in partnership with emergency services (Civil Defence Emergency Management Act, 2002). The Act also established a national Director of CDEM to oversee the system, develop the National CDEM Plan, and allocate resources during emergencies.

Following the 2019 Canterbury earthquakes and subsequent events, New Zealand adopted a proactive risk management approach outlined in the National Disaster Resilience Strategy[1] (2019), replacing the 2002 CDEM[2] strategy. The focus shifted from civil defence and emergency response to a holistic view of national wellbeing. Modern resilience emphasises not only the capacity to resist disruptions and restore functionality but also the ability to adapt, learn, and thrive. The Public Service Act (PSA) 2020 aims to encourage inter-agency mobility and shared responsibility for complex issues. The National Risk and Resilience Framework (NRRF) adopts a strategic, proactive approach to managing 28 national risks across categories, including natural, biological, technological, malicious threats, and economic crises (DPMC, 2020). The 2024 Productivity Commission inquiry highlighted vulnerabilities in New Zealand's supply chains, emphasising the importance of economic resilience for the small, open economy (DPMC, 2020). These developments signal a shift from a 'civil defence' model to a comprehensive 'national resilience' strategy that extends beyond response and recovery.

4. Theory underpinning public sector resilience

4.1. Resilience theory

Resilience Theory and frameworks (discussed in Section 3) enhance understanding of resilience in PSOs and how PA evaluates its effectiveness. The theory provides a dynamic, interdisciplinary view of how systems absorb, adapt, and reorganise in response to change and disruptions. It promotes a proactive, strategic approach that embeds adaptive capacity into daily operations, helping organisations anticipate, absorb, and adapt to threats more effectively (Plimmer et al., 2022). This approach emphasises flexibility, learning, and transformation, highlighting complex systems' ability not only to withstand shocks but also to innovate and evolve. Embedding resilience in the public sector involves more than simply implementing new programmes; it requires systemic, cultural, and structural transformation. It moves beyond merely reacting to external shocks to developing the capacity to prepare for crises, respond under pressure, and learn from experience—ultimately enabling continual reinvention (Vickers & Kouzmin, 2001; Coutu, 2002; Pickett et al., 2014; Boin & McConnell, 2007; Bhamra et al., 2011; Boin & Van Eeten, 2013; Duit, 2016).

Integrating resilience theory into performance auditing is not merely incremental; it is transformative. Resilience enables PSOs to navigate internal and external challenges, seize opportunities amid disruptions, and proactively adjust strategies before crises unfold (Bracci & Tallaki, 2021). However, effective resilience depends on risk perceptions and accounting practices (Tallaki & Bracci, 2020). Performance audits provide objective assessments of PSOs' programmes and operations, supporting improvements in performance and accountability (Downe et al., 2010; Barbera et al., 2020; Haliah et al., 2020). A resilience audit goes beyond compliance, evaluating an organisation's willingness and capacity to adapt. Although a comprehensive resilience audit framework is still emerging, many audits now explicitly or implicitly assess resilience in response to specific risks. The digital transformation of government services has introduced new opportunities for advanced cyberattacks.

[1] The New Zealand National Disaster Resilience Strategy, which came into effect on April 10, 2019, is the 10-year guiding framework for Civil Defence Emergency Management. It outlines a collective agenda for New Zealand to identify hazards, understand risk scenarios, manage risks, improve emergency response andrecovery, address policy gaps, and empower communities to act for their safety and wellbeing.

[2] Civil Defence Emergency Management (CDEM) is New Zealand's official framework for preparing for, responding to, and recovering from emergencies, focusing on risk reduction, readiness, response, and recovery (CDA, 1983).

Through detailed reviews of systems and processes, PAs can identify hidden vulnerabilities to cyber threats that may not be evident in everyday operations. They can also help PSOs strengthen their resilience by assessing and improving organisational performance during periods of disturbance and uncertainty (Parker, 2024; Rana & Parker, 2023a; Rana et al., 2022).

PA supports economical, effective, and efficient governance, promotes accountability and transparency, and provides analysis, insights, and recommendations for improvement. For instance, effective audit in healthcare extends beyond vaccination rates to assess the public health system's resilience to future pandemics. Similarly, infrastructure audits consider not only costs and deadlines but also resilience to climate change. As government services undergo digital transformation, they face heightened cyberattack risks. Detailed reviews enable PAs to identify hidden vulnerabilities and help PSOs strengthen their resilience by improving organisational performance amid disruptions and uncertainty (Parker, 2024; Rana & Parker, 2023b; Rana et al., 2022).

4.2. The herringbone resilience model

Gibson and Tarrant (2010) analyse the principles of modelling resilience as an effective approach to risk management. Fig. 1 below shows Gibson and Tarrant's (2010) 'herringbone resilience model'. The model indicates that an organisation's characteristics and attributes, as well as its activities and capabilities, enhance resilience. It characterises a resilient organisation as one that uses its financial, technical, and social resources to develop long-term capabilities efficiently and reliably, managing risks and seizing opportunities. A core principle of the model is that resilience should be regarded as an outcome. This perspective shifts PSO leaders from merely executing a plan to fostering a resilient, adaptable organisation. This structure represents a socio-technical framework that argues an organisation's resilience cannot be understood separately from its social systems (e.g., culture, leadership, and behaviours).

4.2.1. Performance audit as an accountability mechanism for public sector resilience

The main purpose of public audits is to enhance stakeholders' confidence in PSOs' financial statements through the auditor's opinion. When confidence in democratic institutions is fragile, trust in the audit process is important (Mounk, 2018). Growing demands for public intervention and a strong emphasis on financial performance, often at the expense of non-financial indicators, have raised the need for accountability (Bracci et al., 2015). Several factors, including agency costs, the validation of previously unaudited information, independence, and relevance, affect audit quality (Hay & Cordery, 2018; Johnsen, 2019; Rana et al., 2022). Nevertheless, public audits are criticised for failing to adequately address financial sustainability, performance, and resilience within governments and PSOs.

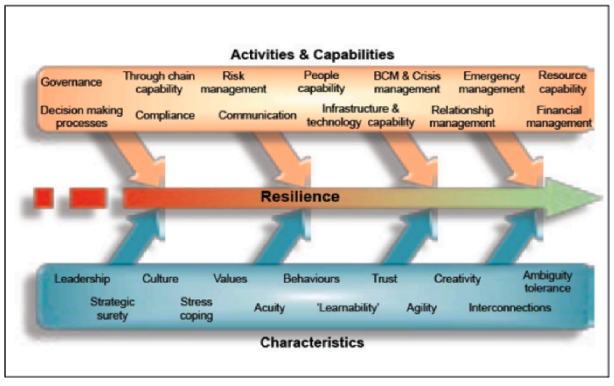


Fig. 1. The herringbone resilience model (Adopted from Gibson & Tarrant (2010), page 10).

4.2.2. Supreme audit Institutions and performance audits

Supreme Audit Institutions (SAIs) worldwide serve as external auditors for public and international organisations. The International Standards of Supreme Audit Institutions (ISSAIs), particularly ISSAI 300 (Performance Audit Principles) and ISSAI 3000 (Performance Audit Standard), guide SAIs. These standards help SAIs improve public-sector accountability and transparency through compliance, financial, and performance audits (Otia & Bracci, 2022). As public-sector performance and accountability have become increasingly important (Johnsen, 2005 & 2019; Parker et al., 2021), the study and practice of performance auditing (PA) have grown significantly in recent decades (Parker et al., 2021). However, as Rana et al. (2022) note, the 'what and why' questions of public audit remain unresolved in the context of PA, posing new challenges for scholars and practitioners. They highlight tensions and contradictions within performance auditing, such as balancing independence and relevance, prioritising performance improvement over increased accountability, and managing unintended consequences. They suggest that future research should further examine the scope and rationale of performance auditing, as well as its internal tensions. Various indicators from different standards and models, including ISO 22316 (Organisational Resilience) and the Committee of Sponsoring Organisations (COSO)'s Enterprise Risk Management framework, are also relevant.

The COVID-19 pandemic underscored the importance of public-sector resilience, as PSOs worldwide faced unprecedented challenges to healthcare, economic stability, and social order. Financial resilience is the capacity of PSOs to withstand financial shocks and stresses, crucial for maintaining essential public services and ensuring long-term financial sustainability (Barbera et al., 2020). By assessing performance against objectives and service plans, PAs identify areas for improvement and use resources efficiently. PAs promote accountability, resilience, good governance, transparency, and performance improvements (Otia & Bracci, 2022). While internal controls, risk management, and audits strengthen governance and trust, PAs add value beyond control. To enhance resilience, PSOs should follow PA recommendations, optimise resources, streamline procedures, and improve service delivery (Amalia, 2023). This boosts performance, resource management, and efficiency (Matlala & Uwizeyimana, 2020). It aligns with the 'bounce forward' resilience concept, which holds that learning from challenges improves future capabilities (Hazgui et al., 2022).

5. Research Methodology

This study uses a qualitative approach and secondary document analysis to examine how performance audit findings reveal strengths and weaknesses in PSOs' resilience during major crises. Specifically, the analysis focuses on four significant crisis events in Australia and New Zealand: the Black Summer Bushfires, the COVID-19 pandemic in Australia, the Canterbury Earthquake, and the COVID-19 pandemic in New Zealand. These cases provide a valuable context for exploring how PSOs planned for, responded to, adapted to, and recovered from severe disruptions.

The cases were selected purposively rather than randomly because they represent extreme crisis events that caused significant public-sector disruption, required extensive government intervention, and attracted considerable performance audit scrutiny. They provide rich empirical settings for examining the paper's main proposition that performance audits can identify vulnerabilities in organisational resilience. For example, the Black Summer Bushfires case provides insights into audit evaluations of disaster recovery governance, environmental restoration, and inter-agency coordination.

The primary data source comprises official performance audit reports and associated public-sector documents. Relevant documents were collected from the Australian National Audit Office (ANAO), the Office

of the Auditor-General of New Zealand (OAG), the Canterbury Earthquake Recovery Authority, the Department of the Prime Minister and Cabinet (New Zealand), and relevant Australian and New Zealand legislative sources. These reports[3] constitute authoritative assessments of public-sector performance and provide a robust basis for examining resilience-related practices and deficiencies.

The final dataset comprised four performance audit reports and four supporting government and policy documents published between 2012 and 2024. Performance audit reports were included if they: (1) were issued by the ANAO or OAG; (2) examined public-sector responses to major crises; (3) reported findings related to governance, accountability, procurement, data management, coordination, or service delivery; and (4) focused on Australia or New Zealand. To provide institutional and contextual background, the analysis was supplemented by additional government and non-government reports, including legislative frameworks, recovery reviews by the COVID-19 Pandemic- ANAO Audit Activity; Canterbury Earthquake Recovery Authority, 2014; Controller & Auditor General's reports, 2017; and Department of the Prime Minister and Cabinet (DPMC), New Zealand, 2017.

The study adopts both inductive and deductive thematic analysis. Deductively, resilience theory and the Herringbone Resilience Model informed the initial analytical framework, guiding the focus towards resilience capacities, including anticipatory, absorptive, adaptive, recovery, and transformative capabilities. Preliminary coding categories derived from prior literature included data integrity, anticipatory capacity, procurement challenges, and absorptive capacity.

We then used inductive coding to identify recurring patterns in the audit evidence. Through an iterative process, the authors categorised audit findings into five higher-order themes: governance and accountability deficiencies; procurement and financial management weaknesses; inadequate network-building and adaptive learning; poor data integrity and information management; and operational inefficiencies. The authors then mapped audit findings to relevant resilience capacities to assess their implications for preparedness, shock absorption, adaptation, recovery, and institutional learning.[4]

The authors coded and analysed the data using NVivo. The authors coded iteratively to refine conceptual categories and strengthen analytical consistency. For instance, procurement deficiencies identified in audit reports were interpreted not merely as compliance failures but as signs of weakened institutional resilience, considering their implications for transparency, resource stewardship, and crisis responsiveness. To enhance reliability, two authors independently coded an initial subset of documents and resolved minor differences through discussion to refine the coding framework. The third author then reviewed the thematic structure and the mapping of findings to resilience capacities, thereby strengthening the analysis's credibility and trustworthiness.

6. Public sector measures of resilience

We first explain the measures adopted by PSOs in Australia during the 2019–2020 Black Summer Bushfires and the 2020 COVID-19 pandemic. We then discuss the measures adopted by PSOs in New Zealand during the 2010–2011 Canterbury Earthquake and the 2020 COVID-19 pandemic. This context provides the foundation for our first research question: the role of PAs in managing crisis situations within PSOs.

The Black Summer Bushfires (2019–2020).

The 2019–20 'Black Summer' bushfires shocked the nation, prompting a fundamental re-evaluation of Australia's disaster resilience programme. The fires burned between 22.4 and 33.8 million hectares, causing significant damage. Total long-term damage is expected to be around $100 billion, highlighting the risks posed by climate change (Boer et al., 2020). The fires claimed 33 lives and destroyed over 3,000 homes, with economic costs of approximately $2.3 billion. The agricultural sector incurred losses of $4-$5 billion (ANAO, 2021a). Power outages disrupted essential services, and telecommunications failures hampered emergency response efforts. A significant mental health crisis followed, with high levels of depression, anxiety, and Post-Traumatic Stress Disorder (PTSD) persisting for 12 to 18 months after the event (Heffernan et al., 2022).

The National Bushfire Recovery Agency (NBRA) and a supplementary $2 billion National Bushfire Recovery Fund (NBRF) were announced on 6 January 2020. Risk management was well integrated into the NBRA's daily activities. The Department of Climate Change, Energy, Environment and Water (DCCEEW) took appropriate planning steps to ensure the Wildlife and Habitat Bushfire Recovery Programme was managed successfully. DCCEEW delivered the programme in two phases: a $50 million emergency response and a $150 million recovery and resilience phase (ANAO, 2023). A notable achievement was establishing a Wildlife and Threatened Species Bushfire Recovery Expert Panel, which provided scientific input and advice on priorities.

The COVID-19 pandemic (2019–2022).

The COVID-19 pandemic posed many challenges for the Australian government and public sector. The government introduced exceptional economic support measures to address operational capacity challenges faced by agencies, particularly the Australian Taxation Office (ATO). Both the 'JobKeeper' and 'Boosting Cash Flow for Employers' schemes proved effective. The JobKeeper Payment distributed a net total of $88.8 billion, and the Boosting Cash Flow for Employers scheme provided over $30.2 billion. The scheme was designed to provide eligible SMEs and not-for-profit organisations with tax-free payments ranging from $20,000 to $100,000, automatically credited to the entity's Business Activity Statement (BAS) account (ANAO, 2022). The ATO implemented proactive compliance measures to detect potential fraud related to this scheme, including artificial business restructuring to access funds, inflating PAYG withholding reports to maximise payments, and reviving dormant entities. Between March and May 2020, up to $3.2 billion was allocated to procure personal protective equipment (PPE) and other medical supplies (ANAO, 2020). The ATO implemented proactive compliance measures to detect potential fraud related to this scheme, including artificial business restructuring to access funds, inflating PAYG withholding reports to maximise payments, and reviving dormant entities.

The ANAO's audit of the rollout found that the Department of Health and Aged Care's planning and implementation were only partially effective (ANAO, 2022). The ATO's risk management was effective during the COVID-19 response. Rapid deployment, supported by resources and expertise, took only weeks rather than months. The rollout reached a large portion of the population, with over 95% of Australians aged 16 and over having received at least two doses by the end of 2021. Logistics were managed efficiently, resulting in minimal vaccine waste. While the programme met its primary goal, planning, timeliness, and equity issues were evident. Vaccination rates among Aboriginal and Torres Strait Islander peoples remained lower than in the broader Australian population. The Department of Health underestimated the complexity of in-reach vaccination efforts, particularly in remote, vulnerable aged care and disability sectors (ANAO, 2022).

The Canterbury Earthquake 2010–2011.

The 2010–2011 Canterbury earthquake tested New Zealand's resilience, causing widespread damage to communities, infrastructure, and the economy. It started in Darfield on September 4, 2010, with a magnitude of 7.1, but the most devastating quake struck on February 22, 2011, with a magnitude of 6.3 (NZ History, 2010). This event led to 185 deaths and extensive destruction, notably the collapse of the Canterbury Television (CTV) and Pyne Gould Corporation (PGC) buildings. The financial impact was substantial, exceeding $52.2 billion in 2010,

[3] Other reports include the Canterbury Earthquake Recovery Authority (2014) and the Department of the Prime Minister and Cabinet (DPMC), New Zealand (2017). References are listed at the end.

[4] Mappings are provided in Appendix 1.

making it New Zealand's costliest natural disaster. The government responded quickly and decisively by establishing the Canterbury Earthquakes Royal Commission (CERC) to investigate the causes of building failures. A key part of the recovery was the creation of the Canterbury Earthquake Recovery Authority (CERA), empowered by the Canterbury Earthquake Recovery Act 2011. CERA acted as a centralised authority, coordinating demolitions and planning recovery efforts. With a five-year mandate and a $453 million budget in 2015/16, CERA became the primary agency leading the recovery efforts.

The OAG's October 2012 report, "Roles, Responsibilities, and Funding of Public Entities after the Canterbury Earthquakes," was the first independent assessment of this evolving governance landscape (OAG, 2012). It recognised that 'CERA did well early in the recovery' and was 'effective in leading a coordinated government response.' The Stronger Christchurch Infrastructure Rebuild Team (SCIRT) supported procurement through robust business systems delivering operational efficiencies and cost-effective projects.

COVID-19 during 2020–2022.

In 2020, New Zealand's COVID-19 response gained international recognition for its low case and death rates and a rapid economic recovery. The government acted swiftly to improve public health, and the Ministry of Social Development (MSD) processed applications efficiently, issuing most payments within 3.5 days. From March to December 2020, the government paid over $13 billion to businesses—a major COVID-19 expenditure—indirectly supporting about 1.8 million employees. By March 2021, businesses had repaid NZ$703 million, with a further NZ$23 million repaid later. Efforts aimed to deliver fair outcomes for Māori and Pacific peoples through targeted programmes and outreach. The Ministry provided regular updates on the vaccine rollout and co-designed a supply model with DHBs to improve local stock management (OAG, 2021). A key theme in the OAG's 2020 response reports was the crucial role of public service personnel, who worked long hours to provide essential services. The work and health safety (WHS) scale was impressive. The reports also noted the Ministry of Health's efforts to overcome challenges in implementing a decentralised primary care delivery system (OAG, 2021).

7. Performance Audit's evaluation of the resilience of PSOs in Australia and New Zealand

To address RQ1, we evaluate the role of PA in assessing the resilience of PSOs in Australia and NZ. We draw on documentary evidence relating to the crises discussed earlier to examine how PAs assessed organisational resilience during these events.

An ANAO audit (Report No. 46, 2020–21) found that NBRA and NBRF management are generally effective but identified ongoing governance weaknesses, especially in NBRA's dealings with similar organisations. The PA report points out two key issues: (a) insufficient institutional learning, which jeopardises effective disaster recovery efforts; and (b) a narrow focus on creativity and communication without prioritising network-building and adaptive learning, which hampers PSOs' resilience. As Comfort (2012) notes, resilience depends on these broader skills, and ignoring network-building can undermine organisational robustness. Recent research supports this view, emphasising that innovation must be balanced with strong network and adaptive learning strategies. The plan to assign ongoing monitoring to NBRA is vague and lacks strategic clarity. Dependence on informal data, limited risk-sharing, and unclear transition plans suggest a focus on short-term results rather than on establishing long-term, systemic capabilities. This short-sighted approach increases systemic risks for governments and hampers efforts to build long-term resilience. To improve disaster recovery and resilience, governance structures should be strengthened, adaptive learning prioritised, and clear, sustainable transition strategies developed.

The PA also found that DCCEEW's planning processes lacked integrity and transparency. Out of 48 procurements, 19 were not reported on AusTender[5] on time, indicating systemic reporting issues. More than three-quarters of 64 projects lacked proper procurement documentation, indicating poor record-keeping. The 2022 review's recommendations were neither shared with leaders nor included in a clear plan. The ANAO report on the Wildlife and Habitat Bushfire Recovery Programme revealed significant gaps in records, risk management, and evaluation, including data verification issues, non-compliance with procurement rules, and unrecorded approvals (ANAO, 2023). These problems highlight the need for reforms to restore trust and transparency. In Australia, the PSO response was audited in three phases: risk management and procurement in 2020–21; pandemic initiatives from 2021 to 2023; and future crisis preparedness and lessons. Economic support measures, such as JobKeeper and Cash Flow, were implemented through existing systems and were effective but faced compliance issues due to the rapid rollout, creating accountability gaps. The vaccine rollout lacked planning and failed to reach vulnerable groups. Border controls were managed, but travel exemptions overwhelmed them. ANAO audits showed that Australia lacked strategic foresight and risk planning, leaving the national medical stockpile (NMS) under-resourced (ANAO, 2021b).

The ANAO also observed that the Australian Public Service (APS) showed resilience due to dedicated staff but struggled to understand coronavirus transmission and asymptomatic spread. Pandemic plans lacked detail on school and border closures, which were essential to Australia's early success (ANAO, 2022). Crisis documents failed to define key functions and were only provided to the Minister a month after the outbreak. The NMS was unprepared; procurement planning was incomplete, and emergency protocols were absent. As of December 2019, the NMS was valued at $123 million, including $10.76 million in PPE. After deploying 3.5 million respirators during the 2019–20 Black Summer bushfires, the NMS's value declined (ANAO, 2023). Despite risk management efforts, compliance issues persisted, particularly in accepting self-assessed claims without verification, resulting in overpayments of $360,000 and reduced transparency. Concerns persisted about the 'wage condition,' as 15 of 49 cases lacked enough evidence. The Department of Health and Aged Care's vaccine rollout largely achieved its goals, but delays in planning, timeliness, and equity led to disparities affecting Aboriginal and Torres Strait Islander peoples (Graham et al., 2022). COVID-19 travel restrictions were effective despite the absence of a pre-pandemic plan, demonstrating adaptability. An audit of biosecurity measures found them to be positive, but the Department of Home Affairs' travel exemption process was only partially effective, with over 900,000 decisions and gaps in implementation (ANAO, 2022).

In New Zealand, the OAG praised the Treasury's response and SCIRT's procurement for the Canterbury Earthquake recovery but suggested improvements in crisis management through pre-planned structures, outcome metrics, and partnership-based governance. The October 2012 OAG report was the first independent review, highlighting improvements in crisis management and community trust. The OAG also commended the Treasury's response to recommendations from the Crown Retail Deposit Guarantee Scheme to improve project management. SCIRT's procurement was supported by effective systems that delivered projects at reasonable cost.

The 2017 CERA audit, however, found no performance framework for community outcomes. Public trust declined due to poor communication with a traumatised population. Ineffective communication and conflicts with Christchurch City Council caused delays and hampered

[5] Australian Government's procurement information system (https://www.tenders.gov.au).

collaboration. Financial mismanagement and governance failures reflected a reactive approach, with systemic issues preventing accurate performance assessment. The 2017 OAG survey confirmed a decline in trust due to governance, engagement, communication, and performance issues, as metrics focused on activities rather than outcomes. Major project delays, poor programme management, and breaches of funding guidelines highlighted systemic problems. These challenges stemmed from the complexity of establishing a new government department during a crisis, with delays in system setup and management failures risking an effective response and recovery.

The audit reports praised the Ministry of Health for overcoming challenges during the rollout, including expanding primary care, using drive-through vaccination sites, mobile vaccination buses, and clinics at marae[6] and churches. The PA report, however, issued six key recommendations: update emergency plans to incorporate PPE guidelines, improve communication of clinical guidelines, overhaul NRS planning and management, clarify provider access procedures, regularly review stock levels, and establish transparent public reporting. These steps were recommended to create a more effective and transparent health response.

During COVID-19, initial health outcomes in 2020 appeared promising but depended on untested systems. Audits revealed the need for stricter post-payment verification, including risk-based audits with source documents to verify claims and reduce reliance on verbal attestations. Risks identified included payments to ineligible businesses, issues with subsidy transfers, and potential fraud. (OAG, 2021). The OAG identified unprepared systems and advised improved verification. A collaborative effort urged the Ministry of Social Development (MSD), Inland Revenue Department (IRD), the Ministry of Business, Innovation and Employment (MBIE), and the Treasury to evaluate the development and impact of WHS. The reviews of the vaccine rollout highlighted PSO's role, noting that new data-sharing agreements with iwi[7] and providers marked significant milestones. The Ministry of Health's initiatives aligned with the OAG's emphasis on equity for Māori and Pacific peoples (OAG, 2021).

However, the PA report found PSO's resilience initiatives outdated and unclear, with insufficient guidance, which reduced their effectiveness. Recommendations on emergency preparedness and pandemic exercises remained only partially implemented, increasing the risk of payments to ineligible businesses, subsidy failures, fraud, and reliance on verbal confirmations. Since PPE management was decentralised by February 2020, the Ministry lacked comprehensive PPE stock data because it lacked a demand-forecasting system. The Ombudsman also flagged the unfair allocation system and strict policies for international arrivals on visa procedures, risk profiling, and pre-departure checks. Addressing these issues was deemed crucial for improving emergency response and safety.

Our RQ1 investigates the role of PAs in public sector organisations. The findings suggest that PAs effectively identify inefficiencies and offer practical recommendations to enhance PSO services. This study interprets these audit findings as qualitative indicators of resilience capacity. Therefore, performance auditing should be understood as a diagnostic and interpretive mechanism for resilience assessment, rather than as a fully developed resilience measurement system.

8. Discussion of key themes in performance audits of ANAO and OAG

Section 8 addresses RQ2 through its two related components. RQ2.1 asks what recurring vulnerabilities ANAO and OAG performance audits expose in PSOs' management of disruption; RQ2.2 asks to what extent those audits engage with resilience as a systemic organisational capability rather than framing it through a compliance and accounting lens. Based on evidence from PA reports, we identify five common vulnerabilities that hinder resilience efforts within PSOs. These include: (1) weaknesses in governance and accountability structures; (2) non-compliance with procurement and financial management standards; (3) limited capacity to build networks and learn adaptively; (4) issues with data accuracy and information systems; and (5) operational inefficiencies that reduce organisational responsiveness. Collectively, these challenges create significant obstacles to building resilient public sector institutions. In the following sections, we examine each factor in detail, connect the audit findings to broader resilience and public administration literature, and outline ways to strengthen organisational preparedness, flexibility, and recovery during crises.

8.1. Governance and accountability issues

Audits consistently identified weaknesses in governance structures, unclear roles and responsibilities, and systemic deficiencies in accountability frameworks. These issues often led to a reactive rather than a proactive approach to crisis management, undermining performance evaluation within the NBRA. Similarly, systemic deficiencies in CERA's accountability hampered performance evaluation. The national security, emergency management, and healthcare systems were unprepared (OAG, 2017).

PAs emphasise that as crises become more intricate and involve multiple stakeholders, a clearly defined governance structure becomes essential. Assigning clear roles and responsibilities helps prevent disjointed responses and encourages coordinated action (Mellor et al., 2024). This supports prompt, appropriate decision-making by clearly separating strategic guidance from operational tasks. Focusing solely on immediate operational concerns can overlook vital long-term strategies for systemic resilience, potentially leaving PSOs unprepared for future crises (Mellor et al., 2024; Nolan et al., 2021). Therefore, establishing flexible funding and staffing arrangements with robust financial and management controls from the outset is crucial to manage the uncertainties inherent in disaster recovery and reduce opportunities for fraud (Vu et al., 2025).

Strong oversight and ongoing improvement mechanisms, such as formal systems for monitoring progress against recommendations, are also essential to ensure transparency and build public trust in recovery efforts (Mellor et al., 2024). The PAs emphasise an urgent need for integrated governance frameworks that enable coordinated action and mutual understanding across all levels of government and with non-governmental organisations (Mukherji et al., 2021). Furthermore, unclear distribution of roles and responsibilities among jurisdictions often results in highly localised and inconsistent responses, causing public confusion and uncertainty during crisis management (Mellor et al., 2024). The lack of a unified framework also hinders coordination among agencies, resulting in inefficiencies and suboptimal disaster management outcomes. A fragmented approach leads to inconsistent responses, emphasising the need to review governance structures to enhance adaptability during crises (Mellor et al., 2024; OAG, 2017).

Establishing clear accountability and effective communication across all government levels is recommended to improve emergency collaboration (Mellor et al., 2024; Boin & Lodge, 2016). This is vital in complex, multi-organisational situations requiring collaborative governance (Enjolras et al., 2024). Multi-level disaster risk reduction relies on proactive PSOs that foster cooperation among communities, authorities, and stakeholders (Raftopoulos et al., 2024). Good governance requires clear mandates, roles, a strong regulatory framework, and coordination across levels to manage risk, adapt to climate change, reduce uncertainty, and improve crisis response (Mellor et al., 2024; Raftopoulos et al., 2024). These reflect a shift from hierarchical to flexible, adaptive systems with polycentric arrangements that distribute authority across multiple actors and levels. Such structures enable local responses and support national resilience (Albris et al., 2020). By promoting

[6] A communal or sacred meeting ground in Māori society in New Zealand.
[7] Iwi are the largest social units in New Zealand Māori society.

community self-organisation and stakeholder participation, decentralised governance broadens decision-making and enhances adaptability to complex risks (González, 2022). Encouraging collaboration, multilevel action, and learning improves social-ecological systems management in disaster risk reduction (Munene et al., 2018). Developing frameworks that combine risk and resilience assessments with decision-making will evaluate adaptation options aligned with urban goals (Mehryar et al., 2022).

However, the plan to decentralise monitoring responsibilities from the NBRA lacked clarity (ANAO, 2021c, p.47). Clearly defining roles is essential for continuous improvement within resilience frameworks (Lv & Sarker, 2024). Resilience frameworks must integrate environmental influences alongside internal capacities, progressing beyond traditional risk assessments to holistic strategies that address vulnerabilities and adaptive capacities across governance levels (Barbera et al., 2017; Wells et al., 2023). Consistent data and longitudinal studies are vital to refine strategies that effectively address emerging challenges (Azhoni et al., 2024).

The ANAO report on the Wildlife and Habitat Bushfire Recovery Programme highlighted gaps between strategic goals and implementation, including poor record-keeping, weak risk management, and a lack of programme evaluation. Other issues included data inaccuracies, non-compliance with procurement policies, and incomplete approvals, all of which affected accountability and integrity (ANAO, 2023, p. 35). These problems emphasise the need for stronger governance and transparency, especially in complex recovery efforts. Additionally, applying risk management strategies that utilise organisational capabilities, such as emergency response and continuity planning, is essential for resilience (Gibson & Tarrant, 2010).

Implementing systems like traffic lights and risk layering enhances adaptive capacity and clarifies fiscal gaps and risk strategies for decision-making (Hochrainer-Stigler et al., 2024). An integrated cycle of assessment, planning, and monitoring is necessary (Nowak et al., 2024). Good governance—decentralisation, strategic planning, organisational culture—is vital for resilience (FitzGerald et al., 2021). Resilient health systems need better governance, innovative funding, clear responsibilities, transparency, and collaboration through forums and repositories (Burau et al., 2024; Orhierhor et al., 2023). Strengthening these is crucial for effective risk management and sustainable climate adaptation.

These findings highlight the urgent need for better governance and transparent procedures in managing complex recovery efforts (Cedergren & Hassel, 2023). Adopting comprehensive risk management strategies, including emergency and business continuity planning, is essential to enhance resilience (Gibson & Tarrant, 2010).

8.2. Non-compliant procurement and financial management

The Department of Health lacked established emergency procurement protocols, and pre-pandemic procurement planning was only partially effective and poorly coordinated across jurisdictions. Other issues included non-compliant procurement procedures, a lack of transparency and integrity, poor coordination, and difficulty managing substantial financial allocations during crises. These problems hindered the efficiency and accountability of response efforts. Despite significant funding for PPE and medical supplies, procedural issues hampered effective delivery, and the absence of clear performance metrics made it difficult to determine whether frontline workers received PPE promptly.

The Department of Climate Change, Energy, Environment, and Water (DCCEEW) was recommended to improve planning, as the review found transparency and integrity issues in procurement: 19 of 48 procurements weren't reported on AusTender in time, and 51 of 64 lacked proper documentation. The 2022 midterm review wasn't shared with leaders, and there was no plan to act on its findings. The PA report showed a lack of systematic tracking, a problem also seen in other jurisdictions where formal methods ensure transparency and trust (Mellor et al., 2024). The OAG stressed the need for a structured approach to review progress. Continued failure to incorporate risk into planning has weakened government preparedness, especially during crises like COVID-19 (Mellor et al., 2024).

In New Zealand, CERA faced breaches of the Appropriation Act, issues with payments to ineligible businesses, and failed subsidy transfers (OAG, 2017). The Auditor-General recognised the complexity of recovery efforts and praised CERA's leadership in the early response. The report recommended implementing pre-planned structures, outcome metrics, and partnership-based governance. It also noted Treasury's positive response and SCIRT's successful procurement efforts.

8.3. Inadequate network building, adaptive learning

The ANAO pointed out ongoing problems with inter-agency coordination in healthcare communication, with information transfer limited to top-down, siloed methods across government departments, restricting the horizontal and bottom-up data flows needed for coordinated responses (Clay-Williams et al., 2020). These observations highlight the complex relationship among governance structures, information flows, and organisational resilience during large-scale public health crises such as the COVID-19 pandemic (Basseal et al., 2023; Clay-Williams et al., 2020). The global health crisis showed that a health system's ability to organise, govern, and finance its operations across all levels in a coordinated manner is essential for responding effectively to new threats (Haldane et al., 2021).

In New Zealand, the PA report found that many recommendations from past reviews on public health emergencies were unaddressed. Several emergency plans were incomplete, unclear, and lacked foresight. Details on school closures, border shutdowns, and quarantines were insufficient. An audit revealed a lack of institutional learning and noted that limited creativity and communication could hinder network building and adaptive learning, vital for PSO resilience.

8.4. Poor data integrity and information management

The PA identified critical data management shortcomings, including inadequate systems for accuracy, poor recordkeeping, and limited inter-agency sharing. In Australia, documentation was missing or incomplete for 51 of 64 procurement projects, raising concerns about self-assessed claims and decision discretion (ANAO, 2023). The ANAO's review of the Wildlife and Habitat Bushfire Recovery Programme cited misalignment with strategic goals, record-keeping issues, risk and procurement failures, and poor programme evaluation—jeopardising accountability and probity (ANAO, 2023). Australia's COVID-19 response exposed weaknesses such as slow adaptation, inconsistent communication, and limited access to timely data, forcing quick decisions with insufficient evidence and undermining accountability (Clay-Williams et al., 2020; Leoni et al., 2022; Janssen & Van der Voort, 2020). Relying on anecdotal or incomplete information further impeded evaluation (Ferry et al., 2022a; Ferry et al., 2022b). Variations across jurisdictions revealed vulnerabilities in centralised systems compared with flexible, decentralised models (Haeffele et al., 2023).

In New Zealand, the PA reports noted the lack of a centralised PPE stock overview across District Health Boards and a lack of a demand-forecasting system. The OAG considered the decentralised PPE management inadequate for ensuring equipment quality and safety. Remedial measures included post-payment checks, often based on verbal confirmation rather than independent verification, which reduced reliability. They also recommended using artificial intelligence to improve planning and adaptation despite challenges with data quality, transparency, and scalability.

8.5. Operational inefficiencies

While PSOs demonstrated agility, particularly in rapid roll-out

scenarios like the ATO's JobKeeper, this speed often came at the expense of thorough initial checks and strong accountability, leading to oversight gaps. Although initiatives like JobKeeper and the Cash Flow scheme were effective and leveraged existing systems (ANAO, 2022), their design prioritised speed over careful planning, resulting in compliance issues and high administrative costs. Similarly, in New Zealand, PA highlighted project delays and criticised CERA for poor programme management, blaming weak strategic planning and insufficient time for system implementation. The JobKeeper programme faced compliance issues due to prioritising speed over checks, creating accountability gaps. This highlights the challenge of balancing swift response with governance (Bracci & Tallaki, 2021; Barbera et al., 2017). Australia's COVID-19 response, initially effective, highlighted the importance of responsiveness and ongoing adaptation (Clay-Williams et al., 2020). COVID-19 response showed that decentralised structures can enhance flexibility and resilience despite risks of fragmentation (Aasen & Klakegg, 2023; Clay-Williams et al., 2020), and a polycentric model allows regional experimentation, reducing the negative impacts of centralised approaches (Hall et al., 2023). Decentralisation incorporates diverse knowledge, improving emergency responses (Cedergren & Hassel, 2023). Rapid telehealth adoption and resource reallocation were vital, unlike rigid systems struggling to adapt (Shih et al., 2022).

Australia's COVID-19 response, however, faced significant challenges due to poor planning and missed targets, especially for vulnerable populations. ANAO audits revealed that the country entered the pandemic with inadequate crisis management frameworks, limited strategic foresight, and ineffective risk planning, leaving the National Medical Stockpile (NMS) under-resourced. The PSOs evaluated the response across three key phases: first, 2020–21, focusing on risk management and emergency procurement; then 2021–2023, reviewing major initiatives such as JobKeeper and the vaccine rollout; and finally, assessing future crisis preparedness and lessons learned. These audits consistently identified critical gaps in Australia's preparedness and response capabilities, particularly in the health system's capacity to withstand sudden shocks and the urgent need for greater agility and resilience. Overall, these findings emphasise the urgent need for PSOs to adopt robust governance and operational strategies, along with flexible reforms, to better manage future crises.

During the crisis, the APS showed resilience, driven by staff dedication and a strong culture. However, it overlooked key aspects of the coronavirus, like transmission modes and asymptomatic spread. Pandemic plans lacked guidance on actions such as school closures, border shutdowns, and quarantines, highlighting the need for comprehensive, tailored strategies with specific contingencies (Rana & Parker, 2023). The PA identified compliance issues with self-assessed claims, risking overpayments of $360,000, and recommended stronger documentation to improve transparency. Concerns about the 'wage condition' arose because 15 of 49 cases lacked evidence of risk mitigation. These issues reflect the challenge of balancing rapid response with accountability amid evolving public-sector dynamics and external risks. Social media has increased transparency, enabling scrutiny of government spending and effectiveness. To prevent fraud in the 'Boosting Cash Flow for Employers' scheme, the ATO implemented strict safeguards against false restructuring and inflated reports.

The ANAO found performance metrics and data unclear, complicating the assessment of PPE distribution. Despite allocating $3.2 billion for PPE and medical supplies from March to May 2020, deliveries were delayed due to procedural issues. These issues emphasise the need for strong accountability frameworks in crisis procurement to ensure transparent and effective resource allocation (Clay-Williams et al., 2020). While the Department of Health and Aged Care largely met its objectives, the ANAO identified delays and deficiencies in planning, timeliness, and equitable access. Vaccination rates among Aboriginal and Torres Strait Islander communities remained disproportionately low. Although border controls were generally effective despite the absence of a pre-pandemic plan, the Department of Home Affairs' management of travel exemptions was only partially effective. Over 900,000 exemption requests were processed, but inconsistent policy application created implementation gaps and outcomes that did not always align with the intended objectives.

RQ2.1 asks what recurring vulnerabilities ANAO and OAG performance audits expose in PSOs' management of disruption. Our findings show that the audits consistently identified deficiencies across five domains[8] presented at the beginning of this section. The audits highlight the urgent need to improve governance structures and transparent operational procedures. In both countries, auditors emphasised the need for stronger governance frameworks, clearer accountability mechanisms, improved emergency planning, and more robust monitoring and evaluation processes.

RQ2.2 asks how far these audits engage with resilience as a systemic organisational capability. The findings suggest that the audits generate substantial resilience-relevant evidence, but they frame it as compliance failure and departure from control standards rather than as a limitation of adaptive capacity, and they do so within a mandate bounded by the individual entity and the audit period. Resilience is most evident during lessons-learned activities, which are least affected by that mandate. Performance audits offer empirical data to evaluate public sector resilience systemically without direct assessment. This paper's synthesis is an analytical contribution, not explicitly drawn from the reports.

9. Conclusion, limitations of the study and future Directions

Organisational resilience has become a key element of effective governance and public service delivery. The safety science perspective complements public administration and accounting approaches by positioning resilience as a dynamic capacity to anticipate, absorb, adapt to, and recover from disruptions while maintaining essential functions. From this perspective, organisational resilience is not only the ability to withstand crises but also the capacity to adapt, learn, and evolve in response to challenges, thereby strengthening the state's ability to protect and serve its citizens. These characteristics make resilience increasingly essential to public-sector organisations operating in complex and rapidly changing environments.

Traditionally, performance auditing was seen as a retrospective process focused on accountability—reviewing past actions to ensure compliance and value for money. However, this approach has changed significantly. In today's world of constant, unpredictable disruptions, performance auditing's primary role is no longer merely to analyse failures after they happen, but to act as a proactive diagnostic tool. Despite its importance, academic research has yet to fully explore the link between PA and organisational resilience.

This study examines how performance audits in Australia and New Zealand assessed PSOs' resilience during major crises, including bushfires, earthquakes, and the COVID-19 pandemic. Our RQ1 investigates the role of PAs in public sector organisations. Our findings, based on documentary evidence and other analyses, show that PAs play a significant role in independently evaluating PSOs' activities, thereby improving public performance and accountability. PAs effectively identify inefficiencies and offer practical recommendations to enhance PSO services. Performance audits generally evaluate economy, efficiency, effectiveness, accountability, risk management, and operational performance. This study interprets these audit findings as qualitative indicators of resilience capacity. Therefore, performance auditing should be understood as a diagnostic and interpretive mechanism for resilience assessment, rather than as a fully developed resilience

[8] Five domains: weak governance and accountability structures, non-compliant procurement and financial management, inadequate network-building and adaptive learning, poor data integrity and information management, and operational inefficiencies arising from the trade-off betweenspeed and control.

measurement system.

Our RQ2 investigates whether PAs independently assess how PSOs can manage disruptions and implement resilience measures effectively. Our findings show that performance audits identified deficiencies, including poor risk planning, inadequate procurement controls, weak inter-agency coordination, insufficient performance measurement, and limited information-sharing systems. The PA reports highlight the urgent need to improve governance structures and transparent operational procedures. In both countries, auditors emphasised the need for stronger governance frameworks, clearer accountability mechanisms, improved emergency planning, and more robust monitoring and evaluation processes. Overall, the findings suggest that strengthening these areas is vital for enhancing organisational resilience, preparedness, and recovery capacity in future crises. These audits consistently identified critical gaps in Australia's preparedness and response capabilities, particularly in the health system's capacity to withstand sudden shocks and the urgent need for greater agility and resilience.

The analysis is primarily qualitative and interpretative, based on secondary documentary analysis, i.e., PA reports from the SAI's in Australia and New Zealand, and other supplementary reports and legislative frameworks to support our analysis.

Future research could extend beyond interpretive mapping and develop a more formal framework for measuring resilience in performance auditing. While this paper views audit findings as indicators of anticipatory, absorptive, adaptive, and recovery capacities, further studies could develop coding protocols, scoring systems, and audit indicators to assess resilience capacities more consistently across agencies and jurisdictions. Future research could also investigate the post-audit implementation process to identify which recommendations are most likely to be adopted, what hinders PSOs from acting on audit findings, and whether they lead to demonstrable improvements in crisis preparedness, response, recovery, and institutional learning. Longitudinal studies tracking PSOs' responses before and after audit interventions would be especially valuable.

CRediT authorship contribution statement

John Kommunuri: Writing – original draft, Methodology, Conceptualization. **Anil Narayan:** Writing – review & editing, Methodology. **Suresh Ramachandra:** Writing – review & editing, Methodology.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1. - coding table

The table below maps audit findings to the Herringbone Resilience Model's activities and Characteristics, and related resilience capacities.

#	Theme	Related to Herringbone		Resilience Capacities		Impact/ status	Audit finding	Codes used	Source
		Activity	*Characteristic*	*Primary*	*Secondary*				
1	Governance & accountability	Governance, through-chain		Transformative	Recovery	Deficiency	Lack of clarity regarding decentralising monitoring responsibilities from the NBRA.	Unclear decentralisation plan;Undefined monitoring responsibility	ANAO 2021, p. 47
2	Procurement & financial management	Financial management, compliance.	acuity	Recovery	Anticipatory, Transformative	Deficiency	19 of 48 procurements not reported to AusTender in time; 51 of 64 lacked documentation; 2022 midterm review not circulated to leaders and no plan to act on it	late AusTender reporting; missing procurement documentation; review not actioned	ANAO 2023, Wildlife & Habitat Bushfire Recovery
3	Network-building & adaptive learning	emergency management	learnability	Transformative	Anticipatory	Deficiency	Recommendations from prior public health emergency reviews unaddressed; pandemic plans incomplete on school closures, border shutdowns, quarantine	Prior recommendations not implemented; plan gaps on specific measures	OAG / DPMC NZ
4	Data integrity & information management	Infrastructure & technology.	acuity	Anticipatory	Absorptive	Deficiency	No centralised PPE stock overview across DHBs; no demand-forecasting system; post-payment checks based on verbal confirmation	No consolidated stock visibility; absent demand forecasting; verbal confirmation substituted for verification	OAG, NZ COVID-19
5	Operational efficiency	decision-making, through-chain.	agility, ambiguity tolerance	Adaptive	Absorptive	Satisfactory	Rapid roll-out leveraged existing ATO systems; speed prioritised over pre-payment checks; $360,000 overpayment exposure; 15 of 49 cases lacked evidence	leveraged existing systems; speed over verification; overpayment exposure	ANAO, 2022, JobKeeper

(*continued on next page*)

(*continued*)

#	Theme	Related to Herringbone		Resilience Capacities		Impact/ status	Audit finding	Codes used	Source
		Activity	*Characteristic*	*Primary*	*Secondary*				
5	Operational efficiency	decision-making, people capability.	stress coping	Absorptive	Adaptive	Satisfactory	of wage-condition risk mitigation Over 900,000 exemption requests processed; inconsistent policy application produced implementation gaps	High-volume processing sustained; inconsistent application of discretion	ANAO, Home Affairs travel exemptions

Data availability

No data was used for the research described in the article.

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