Emergency Communications in Australia

Providing a pathway for the future of the critical link between the community and first responders

30 June 2025

Foreword

The emergency communications ecosystems across the world are under stress from:

- significant shifts in technological capability both in the public safety arena and in what is available to the community to aid them or alert them to dangerous incidents or risks to themselves.
- a generational change evolving in the workforce that is challenging the practices of emergency communications services that have been in place since the 1960s.
- the rise of social media, Apps and Artificial Intelligence that can monitor a person's vital signs and target changes is leading to expectations from the community that emergency services should know what they know.

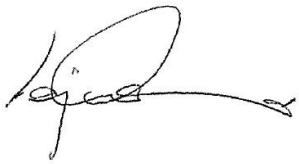
Dealing with these changes requires clear leadership and direction setting to address current demand, respond to sudden changes, and prepare for the future.

This paper has been prepared by the National Emergency Communications Working Group – A/NZ (NECWG) to provide commentary and analysis on areas to improve emergency communication systems in Australia with a view to generate awareness of the challenges and risks and to promote discussion.

The paper does not attempt to articulate the solutions, the emergency communications ecosystem is too complex to do so without considerable consultation across a range of stakeholders, however it does identify the key areas of focus and provides recommendations on the outcomes that would assist in setting a path forward.

It should be noted that during the development of this paper, the establishment of the Triple Zero Custodian was endorsed and initial consultation has commenced, which the NECWG has identified as a positive opportunity to provide a centralised focal point for Triple Zero coordination and development. The paper reflects this through its recommendations by nominating that actions should be conducted and governed through the Triple Zero Custodian.

On behalf of the NECWG, I commend this White Paper for your review and consideration.



Craig Anderson
Executive Chair
National Emergency Communications Working Group – A/NZ

Date: 30 June 2025

Table of contents

Glossary **4**

Acronyms **5**

Executive summary **6**

Recommendations summary **7**

Background **8**

1. Governance and leadership of Triple Zero (000) **11**

Recommendations **16**

2. Contact strategy for Triple Zero (000) **18**

Recommendations **23**

3. Operating model for Triple Zero and ESOs **24**

Recommendations **28**

4. Resilience, security and preparedness **29**

Recommendations **33**

Glossary

Term	Definition
000 Service	The service provided by Telstra to answer Triple Zero (000) emergency calls, through its Emergency Call Person (ECP) platform, and to redirect calls to the appropriate Emergency Service Organisation (ESO), or by default to Police if not specified.
Contact Option/Channel	The method available for contacting ESOs when emergency assistance is needed. This may include voice calls, SMS (text messaging), online or digital reporting tools, and other communication technologies.
Emergency Contact System	The complete emergency response system from the initial Triple Zero (000) call (answered by Telstra), through the relevant ESO's management of the call, to the dispatch and arrival of emergency responders if required.
Emergency Communications Ecosystem	Includes the Emergency Contact System as well as all other organisations involved in emergency and non-emergency public safety response, operating within the broader technological, regulatory, and societal context in which ESOs function.
ESOs (Emergency Service Organisations)	Refers to core emergency services including Police (state and territory police forces), Fire and Rescue services, and Ambulance services across Australian jurisdictions (e.g. Fire and Rescue NSW, QLD Ambulance Service).
ECP (Emergency Call Person)	The Australian national Public Safety Answer Point operated by Telstra under government regulation to receive Triple Zero calls and transfer them to the appropriate ESO.
Universal Service Obligation (USO)	The Australian Government's policy (primarily delivered by Telstra) ensuring that all Australians, regardless of location, have reasonable access to standard telephone services, including free access to emergency call services.
Omni-Channel	A capability that would allow individuals who contact the ECP or ESOs to move seamlessly across different communication channels within the same contact point, between different contact points, or to other relevant jurisdictions.
Telecommunications Regulator	The Australian Communications and Media Authority (ACMA), which regulates broadcasting, telecommunications and radiocommunications, including aspects of emergency call services and consumer protections.

Acronyms

Acronym	Definition
ACMA	Australian Communications and Media Authority
AI	Artificial Intelligence
AML	Advanced Mobile Location
ANZEMC	Australian and New Zealand Emergency Management Committee
CAD	Computer Aided Dispatch
CISA	Cybersecurity and Infrastructure Security Agency
DITRDCSA	Department of Infrastructure, Transport, Regional Development, Communications, Sport, and the Arts
ECD	Emergency Communications and Dispatch
ECLI	Emergency Caller Location Information
ECP	Emergency Call Person
ECS	Emergency Contact System
ESO	Emergency Service Organisation
FRV	Fire Rescue Victoria
ICEMS	InterCAD Emergency Messaging System
IGEM	Inspector General for Emergency Management
MoLI	Mobile Location Identification
NECWG	National Emergency Communications Working Group-A/NZ
NEMA	National Emergency Management Agency
NFRC	National Federation Reform Council
NG000	Next Generation Triple Zero
NRS	National Relay Service
NSW	New South Wales
SES	State Emergency Service
SME	Subject Matter Expert
SMS	Short Message Service
SOCI	Security of Critical Infrastructure
TZCC	Triple Zero Coordination Committee
TZV	Triple Zero Victoria
VoIP	Voice over Internet Protocol

Executive summary

Australia's Emergency Contact System (ECS), underpinned by Triple Zero (000), is a vital part of the national emergency communications ecosystem, serving as the first point of contact for police, fire, and ambulance assistance. However, this decades-old system is facing unprecedented demand and increasing complexity, driven by population growth, more frequent and severe emergencies, evolving societal expectations, and rapid technological advancement.

Despite being seen as a reliable constant, the system is under significant strain. Telstra internal data show that calls to Triple Zero (000) have increased by 44% over the past decade. New technologies, such as wearable medical devices and in-vehicle telemetry, are generating new types of demand. The lack of a cohesive national strategy has led to a fragmented response across jurisdictions, outdated operating models, and an overstretched workforce. **These challenges, if left unaddressed, risk eroding the social contract that guarantees access to emergency help.**

To future-ready Australia's emergency communications, bold and coordinated action is needed. By 2026, Australia must deliver a unified, resilient, and future-focussed emergency communications governance framework, underpinned by an Emergency Contact Strategy that can respond to increasingly complex emergencies and maintain public trust in life-critical services. Without urgent reform, the system risks becoming obsolete, compromising community safety, first responder effectiveness and the wellbeing of frontline staff (call takers and responders).

To facilitate this, the establishment of the Triple Zero Custodian is considered as arguably the most critical outcome for the progression, resilience, and sustainability of the Emergency Contact System. The recommendations of this document are prefaced on the effective functioning and capability of the Triple Zero Custodian, however each recommendation should also be considered in its own right and progressed through whatever the governance arrangements are in place for the Emergency Contact System. In taking this forward there will need to be an exploration of how capability is transformed and sustained over time with consideration of appropriate funding models to both deliver and sustain agreed improvements.

Recommendations summary

1 **Accelerate the establishment of national governance and consultation mechanisms**

including standing up the national Triple Zero Custodian by 31 December 2025 to lead the direction for Triple Zero (000) and clarifying the role of the Triple Zero Custodian within the overall governance framework. (Refer to chapter 1 for more details)

2 **Develop and maintain a National Emergency Contact Strategy to address changes in the way the community communicates**

undertake research, community and industry engagement, and develop agile regulatory frameworks to ensure sustainability and continuous improvement of the emergency communications ecosystem. (Refer to chapter 2 for more details)

3 **Explore options for increasing efficiency in the Operating Model**

including opportunities to enable smarter and more efficient ways of working, simplify multi-agency collaboration and to better support the needs of digital-first users. (Refer to chapter 3 for more details)

4 **Create consistent regulatory guidelines for emerging technologies and designate key emergency infrastructure as critical assets**

so that it supports smarter and more efficient ways of working, simplifies multi-agency collaboration and supports safe work environments. (Refer to chapter 4 for more details)

Background

Background

Triple Zero (000) provides the public with a means to request emergency assistance from police, fire, or ambulance services in life-threatening or time-critical situations. The service, provided by the Commonwealth Government, enables members of the public to call for help from any fixed or mobile phone (where there is coverage), certain Voice over Internet Protocol (VoIP) services and most satellite phones in Australia. While calling Triple Zero (000) appears as a single service from a caller's perspective, it has two parts: the national Triple Zero (000) and State-managed Emergency Service Organisation (ESO) communications centres.

The Emergency Call Person (ECP) (provided under contract with Telstra) answers the initial call and then connects it to the appropriate ESO call centre (police, fire, or ambulance) in the required state or territory, as requested by the caller. This operates differently in Victoria whereby Triple Zero Victoria provides centralised call-taking and dispatch for fire, police, ambulance, and State Emergency Service (SES) events. The ESO call centre facilitates an emergency response to the incident, in accordance with the relevant state or territories legislative arrangements. This end-to-end process is referred to as the Emergency Contact System.

The Emergency Contact System exists within a broader emergency communications ecosystem that relies on telecommunications carriers, telephony and dispatch system providers, as well as relationships with other emergency and non-emergency contact system providers such as the SES, National Relay Service (NRS), and 13 Health.

Telstra internal data shows that over the past decade, Australia has experienced a 44% increase in calls to Triple Zero (000), rising from 8,104,189 in 2014 to 11,676,742 calls in 2024.This increase in demand is fuelled by factors such as:

- **Shifts in frequency and nature of emergency events:** Communities are facing more diverse, frequent, and extreme emergencies. This includes extreme weather events such as the 2019-20 Fires in New South Wales and Victoria; terror and mental health-related emergencies such as the 2017 Bourke Street Car Attack and 2024 Bondi Junction stabbing siege; other large-scale accidents such as the 2024 Hunter Valley Bus Crash; and public health emergencies such as the COVID-19 pandemic.
- **Community mobility and access to services:** Communities increasingly travel and access places where they expect the same level of communication capability as at home. Individuals with only a mobile phone and no fixed land line has increased from 29% in 2015, to 60% in 2020[1]. This increase in contact points also means that when an incident occurs, more people are contacting Triple Zero (000) about the same event.

[1] Mobile-only Australia: living without a fixed line at home | ACMA

- **Increases in population:** Australia's population (26 million in 2022) is projected to grow by 70% to reach between 34.3 and 45.9 million people by 2071[2].
- **Increasing number of non-genuine or accidental calls:** Many autonomous calls arising from increased use of smart devices such as Apple watches are either non-genuine or notifications of minor incidents that do not require emergency response. For example, in Australia, since the introduction of the Apple crash detection service on iPhone 14, more than 60% of the autonomous calls received have been classified as false or non-emergency contacts, as reported by NECWG to the Triple Zero Coordination Committee in October 2024. This has led to impacts on the response capacity of ESOs, predominantly police and ambulance, to these false events adding to requirements for secondary triage processes and reducing their availability to respond to emergency or life-threatening events.
- **The increasing complexity of emergency calls:** Triple Zero (000) calls often involve multiple factors, requiring coordination across ESOs and specialised responders. These calls might involve emergency mental health crises, complex medical needs, criminal offences and victims of crime, fires and chemical hazards requiring single or multi ESO responses or multi-jurisdictional incidents. These require sophisticated call handling and coordinated dispatch, assessment of public and first responder safety risks assessment, informed decision-making, and clarity of command and control.

Beyond this, there are other challenges for emergency communications in Australia:

- **Demographic shifts and geographic dispersion:** The rise of the digital first generation continues the trend of a shift in expectation and use of online capabilities which has the potential to influence and drive the expectation of on-line engagement with emergency communications.
- **Maintaining effectiveness in a federated model:** The emergency communications ecosystem operates and relies on a federated model. It must adhere to legislative responsibilities, budget capacities at national and state levels, and use systems that require a level of interoperability. A coordinated national approach with strong governance will be required to drive a strategic approach that maintains sovereignty while also retaining flexibility to adapt to changing conditions.

These key challenges and emerging trends are just a few that are shaping our emergency communications environment, leading to the need for significant change across several areas.

[2] Population Projections, Australia, 2022 (base) - 2071 | Australian Bureau of Statistics

Governance and leadership of Triple Zero

1. Governance and leadership of Triple Zero (000)

Background: A complex web of governance surrounding Triple Zero (000)

Delivery of the Triple Zero (000) service is a multi-partner approach. Currently, there is no single agency, Department or organisation that has full visibility or responsibility over the end-to-end system. The Commonwealth, States, and Telecommunications Carriers form the basis of traditional partners, but the complexity of governance also includes advocacy groups, system providers, and non-traditional or emerging partners such as personal device manufacturers and App developers. The Commonwealth Government, through the Department of Infrastructure, Transport, Regional Development, Communications, Sport, and the Arts (DITRDCSA) and the Australian Communications and Media Authority (ACMA), are responsible for the performance and management of the ECP currently contracted to Telstra, a public company. Additionally, the ACMA enforce emergency communications regulations that govern how telecommunications providers manage emergency calls.

Australian States and Territories are responsible for the provision of emergency communications within their jurisdictions, with individual agencies (police, fire, and ambulance, or in the case of Victoria, Triple Zero Victoria) undertaking call taking, dispatch and facilitation of the response.

This level of complexity, and in cases where multi-agency response is required, means decisions cannot be undertaken in isolation. Awareness, collaboration, interoperability and (where appropriate) joint decision making must occur.

While no single agency has end to end responsibility, several bodies have oversight of the performance and development of Triple Zero (000). For example, the DITRDCSA chairs the Triple Zero Coordination Committee (TZCC), which was formed to ensure cohesive, national policy direction for Triple Zero (000) and to facilitate coordinated decision making between the Australian Government and State and Territory governments. Also, the National Emergency Management Agency (NEMA), while not directly responsible for the provision or performance of the Triple Zero (000) service, plays an important national role in the oversight, coordination, and response to public safety concerns, particularly when significant events are occurring, and stewards some related capabilities, such as Public Safety Mobile Broadband and the National Messaging System.

In addition, there are national advocacy groups, such as National Emergency Communications Working Group-A/NZ (NECWG), and the Australian Communications Consumer Action Network (ACCAN), whose interests lie in the advancement of national emergency communications, and who participate in collaboration networks designed to influence the development and capability of the Triple Zero (000). The Communications Alliance develops mandatory technical Standards and Codes for the telecommunications industry as part of a co-regulatory process with the ACMA, including instruments covering emergency communications service provision through the carrier networks.

This ecosystem of emergency service communications presents a key challenge surrounding the effective governance and oversight of the Emergency Contact System.

Core challenge: Clarity over ultimate leadership and accountability for Triple Zero (000)

Among all the bodies that exist, leadership – both strategically and functionally – of Triple Zero (000) is not clear, resulting in a lack of direction and as a result, inaction.

In 2024, the Bean Review, which resulted from the Emergency Contact System and Triple Zero (000) being significantly impacted by an outage in the Optus telecommunications network, concluded the roles of existing committees do not include acting as a custodian or providing oversight of the Triple Zero (000) ecosystem, and they are not well adapted to doing so. It noted that, existing committees (TZCC and NECWG) are intended as mechanisms for information sharing, decision making (TZCC only) and ensuring Triple Zero (000) is a cohesive national emergency call network that operates as a seamless end-to-end service[3].

This lack of clarity on roles and accountabilities leads to uncertainty of direction, strategy, and priorities in the national perspective, and creates issues at a jurisdictional level. When considering their own systems and service capability planning and development, there is greater potential for variation of services across and within jurisdictions. This could deny community members consistent Triple Zero (000) access and/or services.

In some instances, for example Advanced Mobile Location (AML), the Commonwealth has supported the development of a nationally coordinated initiative for the improvement of the Emergency Contact System. However, in other instances, jurisdictions have taken to develop their own solutions (e.g. NSW Police Blulink) to accommodate changing needs and community expectations.

Unfortunately, this lack of clear independent leadership has led to an impasse, specifically in the development of strategy and roadmap initiatives as jurisdictions await direction from the Commonwealth, while the Commonwealth is waiting for the jurisdictions to nominate their priority or focus area. Despite this, some efforts have been made to make progress with little tangible outcomes, including:

- In 2014, NECWG developed the Next Generation Triple Zero (NG000) strategy. Noted by the Commonwealth government and referenced in various jurisdictional and national papers, the strategy that outlined critical needs to support the modernisation of the Triple Zero (000) service.

[3] https://apo.org.au/sites/default/files/resource-files/2024-04/apo-nid326618.pdf

- In 2022, NEMA started a process to develop a National Public Safety Communications Strategy, which heavily encompassed Triple Zero (000).

Without clear leadership governance, both State and Federal parties are unable to take a proactive approach to managing technological advances in communications capabilities. Instead, they find themselves trying to retrospectively adapt. This not only means missed opportunities to assess, influence and plan for change – it increases risk. Moving forward, clear governance will allow for consistent planning and decision making on how to use technology to advantage the Emergency Contact System processes and its response to community needs.

Recent developments: Establishment of a Triple Zero Custodian

In response to challenges identified, the Bean Review recommended a Triple Zero Custodian be established with oversight of and overarching responsibility for the efficient functioning of the Triple Zero (000) ecosystem, including monitoring the end-to-end performance of the ecosystem.

A Steering Committee, led by the Telecommunications Industry Ombudsman, and including representatives of organisations in the emergency communications ecosystem, agreed with the conclusion of the Bean Review. The conclusion recommended that the Triple Zero ecosystem would benefit from a Custodian function that would support and promote the coordination of response to significant outages to the Triple Zero (000) service and for the continuous improvement and advancement of the Triple Zero (000) service.

In addressing these recommendations, the Steering Committee proposed that the Triple Zero Custodian should not be a purely operational role, and that it should provide ongoing strategic leadership in improving the Triple Zero (000) ecosystem. Specifically, the Steering Committee recommended that the Triple Zero Custodian:

- have visibility over the entire Triple Zero (000) ecosystem to identify and support remediation of issues
- have a role not just during Triple Zero (000) disruption events, but at all times to help mitigate the risk of Triple Zero (000) disruptions and ensure that all parties are prepared to respond in the event of a disruption
- have 24/7/365 capability, to ensure that it can respond to major Triple Zero (000) outage events as needed
- set the future direction for Triple Zero (000) and identify and advise government on strategic opportunities to improve and progress the Triple Zero (000) call service. This includes identification of changes to the Triple Zero (000) service and/or assessing the impact of change on the ecosystem
- oversee implementation of reviews relating to Triple Zero (000) improvements or overseeing implementation of learnings following an event

- establish and maintain relationships with stakeholders across the Triple Zero (000) ecosystem and government (including NEMA, DITRDCSA, ESOs and ECPs), participate in relevant working groups and committees, and engage with agencies outside of the Triple Zero (000) ecosystem as needed
- support the efficient flow of information between affected ESOs, the ECP and carriers
- assist an affected carrier to coordinate and prioritise actions in initial hours of an outage to ensure ongoing provision of Triple Zero (000), and
- offer remediation advice based on experience with similar incidents.

> *"The custodian really needs to drive change and modernise the triple zero service. This can only be done if the custodian is truly independent." Comment NECWG Industry Engagement Forum – May 2025*

As of the 25th of March 2025, the Triple Zero Custodian has been endorsed with Federal Minister of Communications concluding that the most practical and effective way to establish the Custodian function will be within her Department.

Legislative amendments will be needed to provide formal powers to the Department but, in the first instance, the Department will start performing the duties of the Custodian that can be implemented without legislative change.

The development of the Custodian should also be considered in the context of work currently underway, for example work being undertaken by cross-sector working groups already in place (noting TZCC – policy, and NECWG - operational).

The establishment of the Triple Zero Custodian is considered as arguably the most critical outcome for the progression, resilience, and sustainability of the Emergency Contact System. The recommendations of this document are prefaced on the effective functioning and decision-making capability of the Triple Zero Custodian, however each recommendation should also be considered in its own right and progressed through whatever the governance arrangements are in place for the Emergency Contact System.

> *"Without it (the Triple Zero Custodian) there will continue to be no coherent direction or leadership on Triple Zero as a whole." Comment NECWG Industry Engagement Forum – May 2025*

Recommendations

1.1 Implement the Triple Zero Custodian to lead the direction for Triple Zero (000)

The NECWG applauds the decision by Government to establish a Triple Zero Custodian and looks forward to supporting its implementation and function.

It is acknowledged that to enact all the proposed functions of the Triple Zero Custodian, some legislative amendments may be required to impart formal powers to the Custodian.

It is equally acknowledged that there are a number of functions that could be established ahead of the legislative amendments being enabled.

Therefore, it is recommended that the Triple Zero Custodian be established by 31 December 2025 with functions not requiring legislative amendment to be operational by 30 June 2026.

1.2 Clarify the role of the Triple Zero Custodian within the overall governance framework

Noting the recommendation of the Minister that the Triple Zero Custodian should be positioned within the DITRDCSA, consideration is required of its placement both within the Department and in the overall governance framework for the Triple Zero (000) ecosystem. This consideration should ensure the Triple Zero Custodian retains a level of independence and/or flexibility to carry out its proposed functions in a timely and collaborative manner.

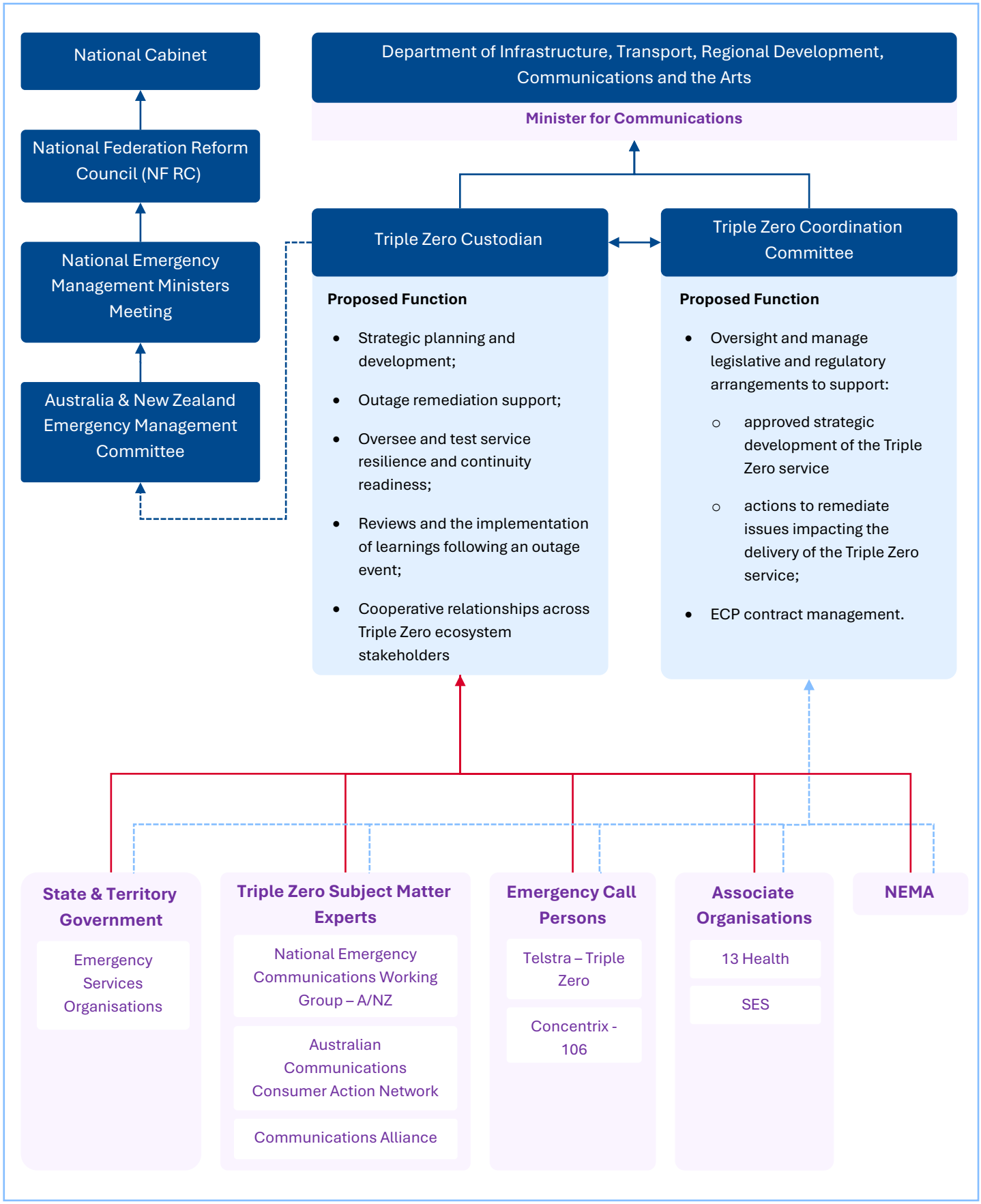
To support this approach, and in recognition of the findings of the Bean Review of the value of existing committees (TZCC and NECWG), it is recommended that the 'delivery and development' and the 'contractual and regulation' aspects of the Triple Zero (000) service be clearly defined and delineated.

The indicative governance structure (on the following page) provides an example of a reframed relationship model using the current Triple Zero Coordination Committee and the new Triple Zero Custodian as reference points.

It is proposed that this model will provide for a focused approach to the operational integrity of the Triple Zero (000) service. It will provide a forum in which to consider, consult on and agree strategic opportunities to prepare for or influence change, and to enhance the service before seeking support for enablement.

In doing this, the Custodian's relationship will be critical to ensure ECPs, ESOs, other government agencies such as NEMA, and subject matter experts such as the NECWG, ACCAN, and Communications Alliance contribute to and/or develop strategic planning that is community focused and operationally appropriate for those responsible for the safety of the community.

Indicative relationship structure (as at 15th May 2025)



Contact strategy for Triple Zero (000)

2. Contact strategy for Triple Zero (000)

Background: Community expectation for contact and interactions is driving a need for forward planning

Today, access to emergency communications services in Australia is predominantly via voice methods (i.e. landline, mobile or satellite phones). While alternative contact methods exist, they are limited and often outdated. The Australian NRS offers a range of contact options to request emergency assistance including using Short Message Services (SMS, commonly referred to as text messaging), Chat and Video for people with hearing or speech impairments.

There is evidence that the community would prefer a broader range of contact points to be available to support them in an emergency. Research conducted over a decade ago showed that approximately 1 in 5 community members incorrectly believed they could access emergency services through contact methods such as SMS or video – services that are still not widely available[4]. More recent studies confirm a growing preference – especially among younger people – for using SMS or smartphone apps in certain emergency situations[5]. In some instances, ESOs have observed community members even post calls for help on social media platforms such as Facebook.

Other sectors are moving towards more omni-channel servicing approaches, the so-called "One Stop Shop". Familiar names include Healthdirect, Services Australia, Service NSW or myGov. These prominent government services as well as many commercial customer experiences in sectors such as banking or telecommunications, set expectations for being able to engage across multiple contact methods.

While shift in contact preferences and behaviours may not be a critical driver for change in 2025, there is little doubt that an Emergency Contact Strategy that plans and prepares for the future of emergency communications needs to start now to ensure the services are ready to support these expectations in the future.

Globally there are examples of enabling standards to learn from such as the NENA i3 standard, a key component of the Next Generation 911 system architecture that defines the structure and design of the functional elements necessary for processing multimedia emergency calls, providing the guardrails for a roadmap for further integration and interoperability over time. This, as well as other Standards enhance the Contact Strategy by providing common baselines upon which enhanced service capabilities can be developed.

[4] NG000 Community Research
[5] Public Safety Business Agency, Triple Zero Communications Survey Report, November 2016

In delivering a new contact strategy, there are a number of key challenges to understand and address in its development.

Key Challenge 1: Validating incident location and context can be difficult in non-voice methods

ESOs require three critical pieces of information to respond effectively to an emergency:

- The location of the incident
- The nature of the emergency and situation of the person at risk
- Any immediate safety threats (such as the presence of weapons)

Gathering this information can be significantly more difficult when using non-voice communication contact methods, such as text messaging. These limitations may affect the accuracy or timeliness of the response and could pose risks to both public and first responder safety. However, in situations where the use of voice is not available or puts the person at further risk, the use of text to relay location information may be the only option.

The location of an incident, from either a landline or mobile call, is easily identifiable from owner records and/or using the AML or Emergency Caller Location Information (ECLI) function that is available on every modern Smartphone. This provides, to a high level of accuracy, the location of the caller allowing ESOs to immediately identify any other conditions known about the location. Location is currently not natively available through non-voice contacts and requires the person to validate this manually. Without a valid or validated location, emergency services cannot be effectively directed to the incident. In considering alternative contact options (i.e. non-voice) the inclusion of automated location information such as AML will be critical.

Understanding the nature of the incident is critical so emergency services can prioritise or dispatch the correct resources to address the incident. Currently, voice calls are the preferred form of communication for Triple Zero (000). It allows staff to hear the tone of voice and relevant background noise when assessing the level of risk and the appropriate response.

Alternative contact methods can enhance situational awareness and could assist agencies in making more informed decisions but would also need to work within operational, administrative and regulatory requirements.

For example, ESOs currently have access to alternate sources of information such as CCTV that can assist in enhancing situational awareness. Similarly, some mobile phones are now capable of sharing of video from the device (upon request) directly with emergency services – such as Apple Emergency SOS on iPhones or via third-party applications.

Key Challenge 2: Disparate implementation creating unrealistic expectations of service capabilities

There is an expectation that Triple Zero (000) capabilities will be consistently available to community members wherever they are and no matter which ESO they are engaging with. However, the lack of a national Emergency Contact Strategy when considering and planning for the implementation of new or different capabilities means this is not always the case.

For example, the NSW BluLink service which includes the capability for NSW Police Force to engage the caller via text and to share video, is only available in NSW via the Police Force. While undoubtedly a valuable capability for NSW, there may be an expectation that it is available in other jurisdictions.

> *"The 000 ECP needs to reflect community needs and requirements in a fast changing environment with higher levels of expectations around agility of services pathways for connectivity and connectedness." Comment NECWG Industry Engagement Forum – May 2025*

Alignment to a national Emergency Contact Strategy would identify these initiatives and consider their application across the nation and, where appropriate, the coordination of their introduction into the Emergency Contact System.

Key Challenge 3: Demand strains on the system driven by false alarms or duplicated reports from alternative contact methods

Recent introduction of in-vehicle telemetry (which generates an autonomous contact to Triple Zero (000) in an emergency) has shown how the number of contacts to Triple Zero (000) can increase and, for ESOs, how managing the number of false or non-emergency calls created by the autonomous systems creates challenges.

For example, in October 2024, NECWG reported to the TZCC that 62% of calls received from these and similar systems were being identified as false activities. Of the total number of contacts received, for police, only around 10% are classified as having needed emergency response. The challenge for ESOs is that they are allocating resources to incidents they would either not usually attend or would attend with a lower priority. This then reduces their capacity to respond to the most urgent requests.

Additionally, the expansion of these autonomous systems means that a higher number of contacts are made about a single incident. For example, a motor vehicle crash could generate calls from the occupants of the vehicle/s involved, from witnesses to the crash, and from in-vehicle systems. Each call will arrive with Triple Zero (000) in a short period of time and, under current processes, each call must be processed individually. This means the ESO will also be responding to multiple calls about the same incident.

While there are operational and situational awareness considerations that could benefit ESOs – such as whether any of the contacts have new information to assist in decision making and /or requirements – these could be outweighed by the increased demand on already stretched resources. Moreover, opportunities already exist to access tools and systems that can assist Triple Zero (000) and the ESOs in identifying the location, content, and priority of the contact.

The development of an Emergency Contact Strategy would provide a framework through to which to assess challenges and opportunities, how they might influence demand on the Emergency Contact System and how they can best be managed.

Key Challenge 4: Limitations in capacity to undertake change in a timely manner

In exploring alternative contact methods or other service improvements for an Emergency Contact Strategy, investment in core systems and technologies will be required. This is to ensure the end-to-end Emergency Contact System can take advantage of current and future technological advancements (such as machine learning and intelligent systems that assist and manage demand) to prioritise the most urgent needs of the public.

> *"Call for national funding (grants program that ESOs can apply for)." Comment NECWG Industry Engagement Forum – May 2025*

The approach to undertake improvements will also need to be considered as the current process is insufficient to support timely investment in change. International models vary with some applying levies on telecommunications services to generate an emergency communications improvement fund. Similar models exist in public safety for fire and ambulance services and could be considered as part of the development of the Emergency Contact Strategy to ensure the sustainability of both current services as well as offering investment capacity for improvements to deliver on the strategic objectives.

Recommendations

2.1 Develop a future focussed Emergency Contact Strategy

Develop a national Emergency Contact Strategy, led by the Triple Zero Custodian and in collaboration with stakeholders of the emergency communications ecosystem that includes Emergency Call Persons, ESOs, subject matter expert groups (e.g. NECWG), community advocacy groups (e.g. ACCAN), industry advocacy groups (e.g. Communications Alliance), and Government.

The Strategy would provide clear objectives and a roadmap to support the enhancement of the Emergency Contact System over time, to assure best value for the community, fiscal responsibility and sustainability. Without an agreed Strategy in place, the Emergency Contact System risks being out of step with public and ESO expectations and may fall short of meeting community needs.

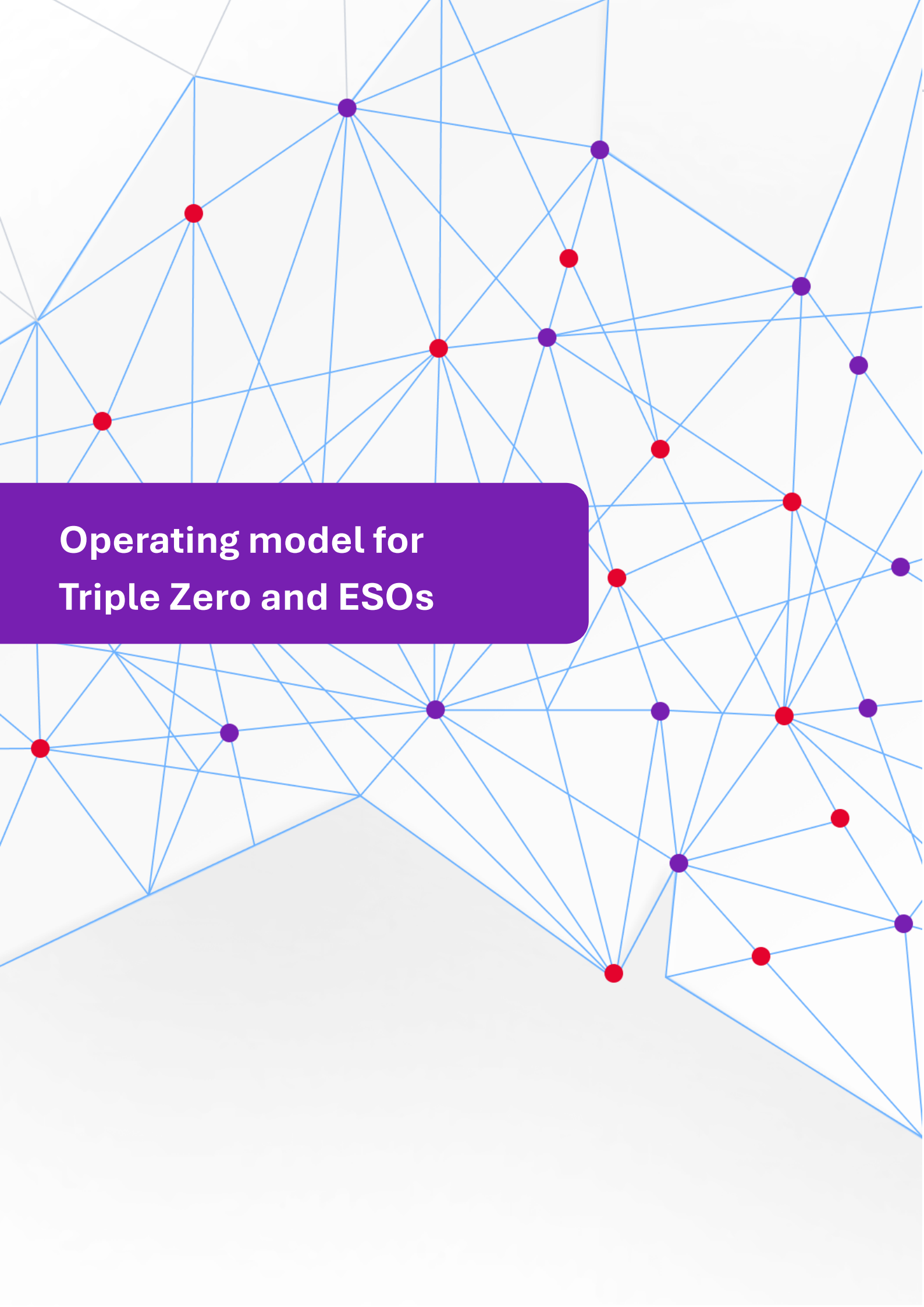
The Emergency Contact Strategy should be developed and agreed by end-2026 and include strategic objectives that reflect:

- community needs and preferences for contact in different emergency situations
- international, national, and jurisdictional trends and demands including learnings from NENA's i3 standards
- future challenges and their likely impact on demand such as industry and technological development, societal shifts, etc.
- the need to achieve outcomes that support the nuances of a federated service provision
- a concept of operations for the Emergency Contact System that outlines what the future experience will be like for callers and ESOs
- a set of investment guiding principles, funding model requirements as well as key near term (5 years) focus areas for development aligned to the strategic objectives

The Emergency Contact Strategy should be reviewed and endorsed by the relevant Commonwealth authority that includes representation of State and Territory stakeholders of the Emergency Contact System (e.g. National Emergency Management Ministers Meeting (NEMMM)).

2.2 Develop evidence base for preferences and implications of new contact methods

While there is a growing body of evidence that new generations prefer contact methods beyond the traditional voice options currently available to most emergency service users, there is little (if any) contemporary research on whether that extends to emergency services. To properly assess, prepare and plan for the capabilities that may be required for future Emergency Contact Services, more robust research is needed. This will help to determine the true value and implications of investment in new contact methods and technologies as well as how they can be used most effectively in an emergency context.



Operating model for Triple Zero and ESOs

3. Operating model for Triple Zero and ESOs

Background: A fragmented and inconsistent national operating context

Despite increasing demand on emergency systems, and while some capabilities have advanced, the current Triple Zero (000) operating model is still based on the original model established six decades ago. This involves a linear Triple Zero (000) model which answers calls and redirects them to the nominated ESO, or where the caller is unsure which service is needed, to Police.

This outdated operating model can negatively impact emergency response times. To address this, individual or joint initiatives have been undertaken to minimise delays and to better coordinate within and across ESOs. The primary example of change is the centralisation of call-taking and dispatch services in Triple Zero Victoria. Other examples include the use of centralised or common Computer Aided Dispatch (CAD) systems, and the development of the InterCAD Emergency Messaging System (ICEMS).

While this has assisted some jurisdictions in better managing the downstream activity of responding to a Triple Zero (000) call, they are 'band-aid' solutions that are lacking governance and investment.

Challenges with the current linear operating model are magnified when availability becomes constrained, whether that is due to a pandemic, cyber-attacks, natural disasters, large scale emergency events, technology failures or even a power outage, or when faced with having to manage a new and unplanned access methodology to Triple Zero such as wearable medical technology providers.

Each of these disruptions can, and will, require differing responses and mitigation strategies, or potentially legislative change. One common factor exists in all these disruptions; they will not be resolved by agencies or jurisdictions in isolation. There must be collaboration, coordination, and support within and across jurisdictions and agencies to achieve the continuity required to provide an appropriate response in any scenario.

Key challenge 1: Lack of systems integration, information sharing and interoperability

Numerous Disaster Commissions and Inquiries in Australia have highlighted the need for greater integration and interoperability across all elements of emergency event response. This is to ensure information is shared in a timely manner and that critical decision making is supported. Some of these Disaster Commissions and Inquiries include the Black Saturday Royal Commission, the Royal Commission into Natural Disaster Response, various state Inspector General for Emergency Management (IGEM) reports of flood and fire response, and the Optus Review (Bean review).

There have already been some advances in information sharing as part of Australia's emergency communications ecosystem, such as the introduction of Advanced Mobile

Location. However, interoperability and/or integration of systems in the Emergency Contact System (such as between the CAD and Call Management) have been, in the main, developed at a jurisdiction or agency level – and not always consistently.

Other forms of bespoke interoperability also exist in some Health / Ambulance and Police services in which emergency and non-emergency services have procedural and technical interoperability. However, again this is not consistent, and this level of interoperability does not currently exist in the national service.

In major events, such as the COVID pandemic, there needed to be interoperability not just within the Emergency Contact System but also across other systems that contributed to the response to the pandemic including the health sector. While collaboration occurred, it was not a coordinated approach, and underpinning systems and protocols lacked the level of interoperability that allowed both the providers of the services to be more effective in their delivery, and for the users to better understand their options for accessing support.

Standards exist that promote the creation of interoperable capabilities across key systems used in the emergency communications environment, such as NENA i3. Assessment, and commitment both at ESO and ECS levels to agreed standards will simplify the achievement of interoperability.

> *"We need to work smarter not harder. Interoperability is also critical to meet public expectations." Comment NECWG Industry Engagement Forum – May 2025*

Key challenge 2: Lack of modern technology to support modern servicing

The current Emergency Contact System has significant limitations that hinder the ability to take advantage of modern technology. For example, there is an opportunity to identify and address isolated or high priority incidents through dynamic call queues using modern technologies to prioritise calls based on need, rather than the current linear system of waiting in line in a queue regardless of which caller has the most pressing emergency.

There are several potential opportunities to use Artificial Intelligence (AI) and other smart technology in the ESOs Emergency Communications and Dispatch (ECD) Centres to support improved service to the public and first responders. AI and smart technology could support and enable human agents (Communicators, Dispatchers, Shift Commanders etc.) to perform their role more efficiently and effectively thereby improving service delivery. Leveraging AI capabilities, the Emergency Contact System could offer multi-lingual services enabled by real-time translation, increased risk identification through AI call listening and word prompts, assisted offence coding and note taking to free up agent time to focus on call taking and much more. However, application of AI capabilities is based on the premise that the core systems in the Triple Zero (000) and ESOs ECD Centres are modern products that can integrate with AI and smart technology solutions.

Further, the application of AI in administrative or other support functions (such as Quality Assurance, and training) could release resource capacity to undertake more critical tasks.

The limitations holding back investments in these technologies are a barrier to improved operations, connectivity, and operating models between the public of Australia and emergency first responders.

Key challenge 3: Lack of integration and community awareness of contact points

The Australian community needs to recall a range of numbers to contact depending on their situation and need. The number the person recalls is often influenced by their own perceptions of the event and their response to it. For example, a tree falling across a fence during a storm may be considered an emergency by one neighbour and a non-emergency by the other. This then creates uncertainty as to the best contact to resolve the issue leading many people to recall the simplest number, being 000, and inadvertently increasing demand on the national Emergency Contact System.

> *"Community expectations are shifting and we need to ensure our emergency contact ecosystems for both people contacting emergency services but also for emergency services to handle, vet and process larger volumes and more data rich information from numerous avenues and sources to respond more effectively and efficiently, keep pace with community needs. ESO's will need to work smarter to keep pace." Comment NECWG Industry Engagement Forum – May 2025*

The linear operating model of the Emergency Call System often requires people to disconnect from one service and contact another, adding to frustration and confusion of the person when their 'emergency' is perceived as not being treated as such. However, the introduction of services, such as HealthDirect, into the Emergency Contact System similarly risks adding to this confusion when a person's concern is not addressed at the first point of contact. Integration needs to be considered by design. Consideration of the two-way integration and interoperability of services with the emergency communications ecosystem including simplifying the recall of the appropriate contact point, improving the hand-off and seamless distribution of calls to the appropriate response agency could reduce community uncertainty and improve the management of demand on the Triple Zero (000) service.

Key challenge 4: Aligning ways of working across agencies

Police, Fire and Ambulance operate in different ways based on their organisational focus and procedures in managing different situations. However, the underpinning service chain for emergency contact is the same, that is: receive a contact, classify the request, determine and facilitate the most appropriate response. The variance comes with the application of ESO specific procedures. For example, to ensure the most appropriate deployment of scarce resources, Ambulance NSW conducts a secondary triage at the point of hand-off from the

national Triple Zero (000) to consider whether it requires an ambulance-led response versus despatch of, or referral to, another kind of health or social service. Supporting more integrated ways of working within the Emergency Contact System could develop a level of cross-skilling capability that could result in closer alignment in emergency communications procedures and cross ESO support.

Whilst considering a common operating model, it is important to ensure that recognition of the sovereignty of each agency to manage their own business is maintained or enhanced. It is acknowledged that each constituent agency is part of a collective system and service and that agencies may need to accommodate national objectives and outcomes within their own strategic and operational management frameworks.

> *"Interoperability can't come at the expense of existing interoperability across agencies in a single jurisdiction, or the specialisation within agencies. The outcomes of interoperability are great, it is the how that is very difficult given we are all starting from different places and there is a risk of degrading the existing service." Comment NECWG Industry Engagement Forum – May 2025*

Any operating model change would need to ensure nuances and/or specific agency protocols are maintained and managed appropriately in any continuity or contingency planning and execution. Increasing collaboration should strengthen the emergency services response overall without hampering individual parts.

Recommendations

3.1 Explore options for increasing efficiency in the Operating Model

It is proposed that the future operating model for the Emergency Contact System could be significantly improved to deliver better outcomes for the public.

Led by the Triple Zero Custodian, it is recommended to explore options for an operating model that reduces hand-offs between agencies or service providers, simplifies access, distributes contacts seamlessly, and gathers and shares information would support more efficient use of resourcing and lead to faster response times for the community.

A nationally interoperable operating model would promote engagement with other agencies who have responsibilities for emergency response such as councils, National coordination agencies, and utility companies. It would also assist with response coordination and community support during local and national emergencies.

A range of options should be considered to support more streamlined and consistent delivery and to enable the adoption of new forms of emergency communication capabilities. With consideration of policy and regulation, these improvements should be explored and developed in the context of the varying governance and organisational models of Australian emergency services.

3.2 Options for consideration could include:

- A “no wrong door” approach that may involve the consolidation of multiple contact numbers to a single national number. This would work by ensuring a contact is assessed and seamlessly distributed to the most appropriate response agency whether that be an emergency or non-emergency organisation. Careful consideration must be given however to avoiding becoming a front door for all government services.
- The introduction of AI to assist in the analysis and distribution of callers as well as supporting capability such as language interpreting or contact grouping (e.g. from an incident location).
- The introduction of AI to undertake simple administrative tasks (e.g. patient transport booking, burn-off notifications), thereby reducing demand and allowing call-taking staff to focus on more critical tasks.
- Identifying information sharing needs and benefits and establishing protocols to enable the secure transfer of information required to support response determination, priority, and coordination.

Resilience, security and preparedness

4. Resilience, security and preparedness

Background: Keeping pace with the threats of a modern world

Emergency communications are already feeling the effects of advanced security threats such as cyber or denial of service attacks. However, there are other threats to the service that could impact the resilience or preparedness of the Emergency Contact System.

These threats can take different forms including:

- lack of appropriate controls (Optus outage 2023)[6]
- lack of procedural maintenance (Triple Zero Outage 2024)[7]
- technology innovation being delivered without due consideration of service impact (Apple crash detection)
- lack of defined continuity requirements for infrastructure supporting the Emergency Contact System
- human error due to manual inputs or data entry (Triple Zero Outage 2024).[8]

Each of these factors has different mitigation approaches and may impact either or both the national service or individual jurisdictions.

Modern threats are evolving rapidly, but emergency communications face key challenges that limit their ability to keep pace with these threats.

> *"The expectation of the community is the emergency Triple Zero environment is resilient and secure." Comment NECWG Industry Engagement Forum – May 2025*

Key challenge 1: Variation in approaches to security

The expansion of, and increasing reliance and dependency on, internet or online technology means we are vulnerable to threats of cyber-attacks, denial of service, data breaches, and network failures.

[6] Optus penalised $12m for Triple Zero failures - iTnews
[7] Telstra pays $3 million penalty for Triple Zero outage | ACMA
[8] https://www.telstra.com.au/exchange/000-outage-report

For example, in 2022 Fire Rescue Victoria (FRV) experienced a significant cyber-attack on its information and computer technology systems, including emergency response dispatch systems[9]. This cyber-attack forced firefighters to rely on mobile phones, radios, and pagers to respond to emergencies. Additionally, the attack potentially resulted in sensitive information being accessed or stolen about current and former employees of FRV, board members, individual contractors, secondees and job applicants.

Inconsistent use of cybersecurity guidelines and safeguards leave organisations open to exploitation, the impacts of which may be felt well beyond the borders of the impacted entity.

This requires a national approach given the widespread and universal threat posed by such attacks. That is, one jurisdiction is just as likely to experience an attack compared to another. Ensuring a national approach to security provides certainty there are vulnerability across jurisdictions is minimised.

Key challenge 2: Variation in approaches to critical infrastructure

Infrastructure and facilities supporting emergency communications are not consistently treated as critical infrastructure across agencies and jurisdictions.

The Security of Critical Infrastructure (SOCI) Act 2018 defines eleven sectors to which the Act applies including communications. Under the definition contained in the Act, critical infrastructure is “those physical facilities, supply chains, information technologies and communication networks, which if destroyed, degraded or rendered unavailable for an extended period, would significantly impact the social or economic wellbeing of the nation, or affect Australia’s ability to conduct national defence and ensure national security".

Under the current national classification, large components of the Triple Zero (000) System, including national and jurisdictional communications centres and the infrastructure supporting these centres, are not currently classed as critical infrastructure. It is proposed that a gap analysis study be undertaken to assess the identification, the consideration, the requirements of Emergency Contact System related systems.

The outputs and decisions of this analysis would also need careful consideration of the cascading obligations this might place on owners and operators of nominated critical infrastructure, including on its coverage under existing state equivalent legislation, and on ensuring that any increased compliance obligation is absolutely necessary and not unduly onerous.

[9] https://www.frv.vic.gov.au/cyber-attack-information-dec-2022

"We are aware of the increasingly complex environments we work in and the opportunities they pose for those intent on exploiting vulnerabilities. We need to strengthen and protect the infrastructure we rely on." Comment NECWG Industry Engagement Forum – May 2025

Key challenge 3: Regulation is not keeping pace with innovation

Australia's *Telecommunications Act 1997* does not address interaction channels outside of landline and voice.

The opportunity for developers and innovators to create and promote items as 'public safety support capabilities', such as wearable medical technology providers, personal domestic violence alarms, or in-vehicle crash detection systems, is currently a largely ungoverned market as it relates to dependencies on government services.

Moreover, the lack of an enabling regulatory framework for Triple Zero (000) makes it difficult for the ESOs to respond to both new and growing demand for the Emergency Contact System to manage:

- the growth of autonomous devices that, when activated, call Triple Zero (000),
- the imminent introduction of e-Call vehicle telemetry,
- the emergence of Direct to Device services,
- the rise in sensors that monitor personal wellbeing and other parameters that, when triggered, initiate a contact with Triple Zero,
- the development of Apps that purport to create a connection and potentially initiate a response from emergency services.

Without assessment and consideration of appropriate regulation there is a risk that Triple Zero (000) and/or ESOs will not be equipped to deal with the volume of and/or nature of requests generated by these systems. This may have a downstream impact where time wasted responding to false emergency alerts from these services and devices impacts the availability and/or speed at which a first responder can attend a genuine emergency.

Key challenge 4: Maintaining consistency and currency of protocol and procedure

The current Triple Zero (000) service still relies on manual intervention during surge or outage events. In adherence to protocols and procedures, this requires considerable coordination across more than twenty organisations. This number expands when extending that coordination to and between individual agencies.

There is no easy mechanism to proactively maintain even the simplest of data (such as contact details). Instead, it relies on individual efforts to monitor and undertake the updates.

This manual process depends on all parties responding with their updates in a timely manner, otherwise creating gaps and delays in processes when trying to manage time critical issues.

"A consistent SOCI approach is needed." Comment NECWG Industry Engagement Forum – May 2025

Recommendations

4.1 Establish a national security guideline for emergency communications

- Led by the Triple Zero Custodian, review existing security guideline documents for emergency communications ecosystems (e.g. Cybersecurity and Infrastructure Security Agency (CISA) – 911 Cybersecurity Best Practices Package10) and consider the adoption or adaptation of the guideline for the ECS.
- Publish, educate, and assess compliance.

4.2 Assess the inclusion of the infrastructure of the ECS as "critical infrastructure"

- Through the Triple Zero Custodian, identify and assess the infrastructure components of the ECS that would be considered as "critical infrastructure" under the definition of the Act.
- Coordinate with the relevant stakeholders to explore inclusion in the SOCI Act.

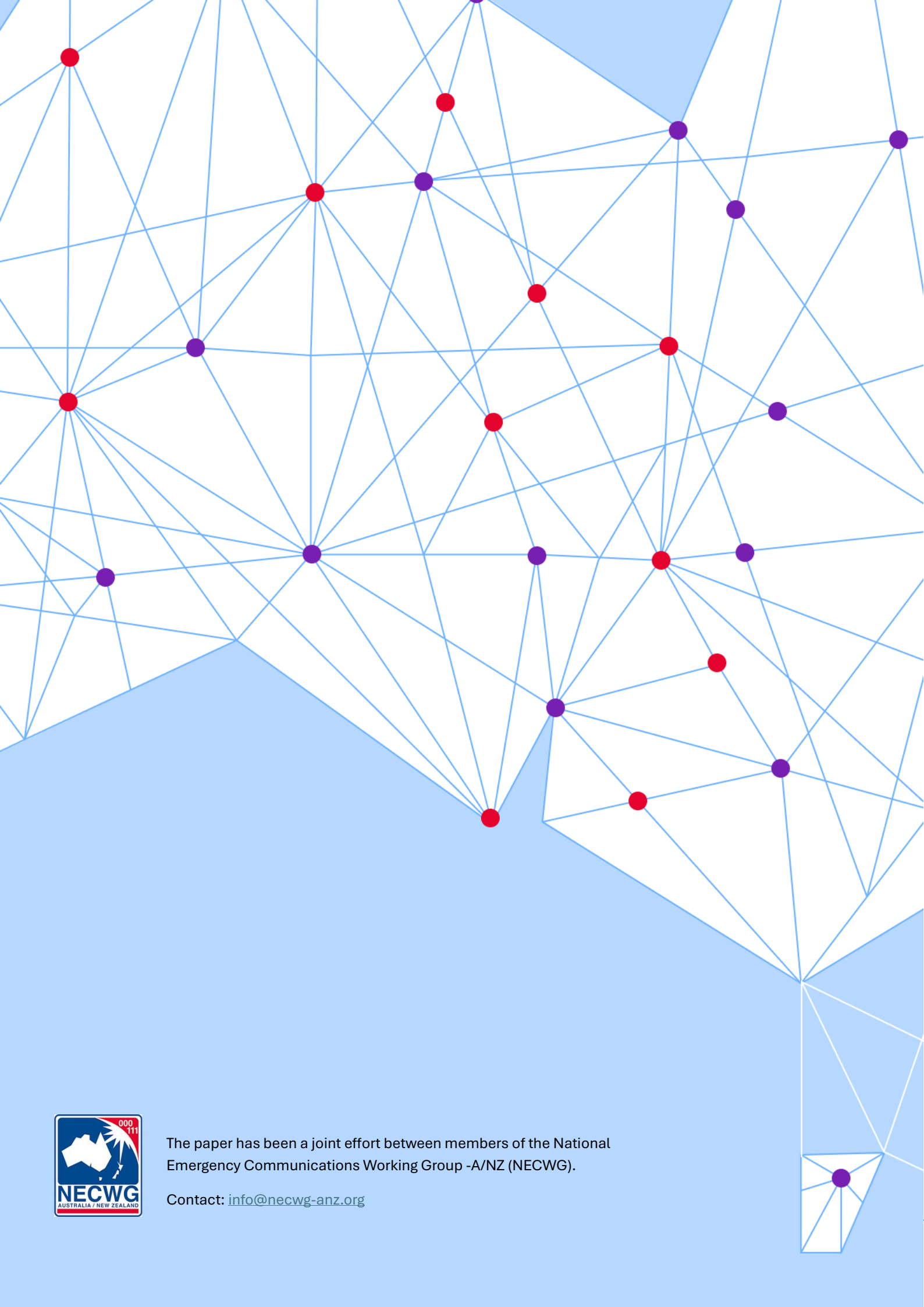
4.3 Establish a robust research and industry engagement model

- Through the Triple Zero Custodian, create a robust research and industry engagement model that:
  - monitors industry developments in Apps, systems, and services that may have implications for the ECS.
  - coordinates the analysis of these implications with the relevant stakeholders and Subject Matter Experts (SME), to determine where any regulatory or legislative instruments are applicable or should be developed.
  - if required, coordinates the development of a submission seeking amendment to, or creation of, appropriate regulation or legislation to minimise the disruption or impacts to the ECS.

4.4 Establish a robust process to maintain Triple Zero (000) operating protocols

- Through the Triple Zero Custodian, coordinate engagement with the Triple Zero (000) ECP and other stakeholders to establish a robust and timely process to create, maintain, and update operating protocols between the national Triple Zero (000) service and downstream ESOs.

[10] 911 Cybersecurity Best Practices Package, July 2023



The paper has been a joint effort between members of the National Emergency Communications Working Group -A/NZ (NECWG).

Contact: info@necwg-anz.org