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VESPIIA

FUTURE FRONTLINES

STRATEGY PAPERS FOR AUSTRALIAN HEROES' WELLBEING

Advancing Cross-Sector Capability:
Bridging Defence Innovation and First Responder Readiness





Future Frontlines: Strategy Papers for Australian Heroes' Well-being #3

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Please direct inquiries to ceo@vespia.org

This publication can be downloaded at:
www.vespia.org

VESPIIA
Suite 122, 175 Rokeby Road,
Subiaco, WA, 6008
Australia

For all general enquiries:
Email: hello@vespia.org

ABOUT UWA DSI

The Defence and Security Institute (DSI) is an initiative by The University of Western Australia (UWA). Hosted at UWA, the DSI unifies and focuses UWA's expertise in defence and security research, engagement, and education. Defence and security provide the foundation of our nation's sovereignty. In an era of rapidly evolving geopolitics, this critical area of national policy sits at the forefront of government and public debates.

The DSI plays a central role in helping to develop Australia's sovereign defence capabilities in WA by working with local, state, and federal governments, industry and business, research institutions and the community to help generate solutions towards a peaceful, prosperous and secure Australia and Indo-Pacific region.

ABOUT VESPIIA

The Veterans, Emergency Services & Police Industry Institute of Australia (VESPIIA) stands as the pioneering professional body in Australia, uniquely crafted to champion the tireless efforts of those who support the backbone of our nation—Veterans, Emergency Services, Police, and their families. Serving as a dedicated bastion of support, VESPIIA provides initiatives designed to uplift the organisations, committed staff, and selfless volunteers who tirelessly deliver essential support and programs to the heroes in our communities.

More than a professional body, VESPIIA represents a continuum of service, recognising that supporting those who, in turn, support our service communities is an ongoing commitment. As the institute propels forward, it remains steadfast in its dedication to creating an ecosystem where the supporters of our nation's defenders receive the backing, they need to carry out their noble work effectively and with unwavering commitment. VESPIIA, at its core, is an instrumental force in fortifying the foundation of gratitude, support, and excellence upon which our service communities thrive.

ABOUT THE FRONTLINE FUTURES PAPERS

'Future Frontlines: Papers for Australian Heroes' Well-being' is a series dedicated to advancing the well-being and resilience of our nation's veterans and first responders. In these papers, we explore cutting-edge research and innovative strategies designed to address the unique challenges faced by those who have served and continue to serve on the frontlines.

Our mission is to provide a platform for knowledge sharing, collaboration, and advocacy to ensure that the heroes who protect our communities receive the support and care they deserve. We are committed to fostering a culture of understanding and empowerment, helping our heroes thrive beyond their courageous service to our nation.

ABOUT THE CONTRIBUTORS

SHANNON HENNESSY



The Future Frontlines Papers are written and edited by Shannon Hennessy, CEO of VESPIIA. Shannon has worked across ex-service organisations, defence industry, WA State Government, and WA State Parliament since 2017. Shannon's career has focused on enhancing the well-being of veterans and their families through innovative psychosocial programming and community-building initiatives. Her work also reflects a profound commitment to recognising and addressing the shared needs of defence and first response personnel and their families.

(E) shan@vespiia.org

GREG WHITEHOUSE



Greg Whitehouse, a seasoned leader and manager in the Defence Community, boasts a distinguished 20-year tenure in the Australian Defence Force and a proven track record as a defence industry expert. Greg serves as the Chair of VESPIIA, underscoring his commitment to the well-being of veterans, first responders, and their families. His multifaceted leadership reflects a deep understanding of the challenges faced by those who serve and an unyielding passion for fostering resilience and empowerment. Greg is committed to resilience and empowerment, driving positive change for our nation's heroes.

(E) greg@vespiia.org

FIONA CONSIDINE



Fiona is the Business Manager at the UWA Defence and Security Institute, overseeing operations, program delivery, and stakeholder engagement. She also serves as Secretary to the Executive Committee and Advisory Board. As Creative Director of the Black Swan Strategy Papers, she guides the publication's development and impact. With expertise in strategic planning, engagement, and event management, Fiona is dedicated to growing the Institute's influence and advancing defence and national security policy.

(E) defenceinstitute@uwa.edu.au

INTRODUCTION

In the third issue of Future Frontlines: Strategy Papers for Australian Heroes' Well-being, VESPIIA shifts focus to the theme of capability development and the cross-sector potential between Australia's Defence Industry and first responder agencies.

Australia's national investment in defence capability has cultivated a thriving sovereign defence industry, generating cutting-edge equipment, technologies, and systems. These developments are bolstering our national security and positioning Australian-made solutions as globally sought-after assets. Yet, as defence advances at scale, state-based first responder agencies continue to expand their remit, often without comparable access to innovation, resource-sharing or technology transfer opportunities.

Recognising this gap, VESPIIA convened a cross-sector round table with representatives from Defence Industry, Fire and Emergency Services, and Ambulance agencies. Building on the recommendations of earlier VESPIIA forums—where the establishment of an integrated network was proposed—this third roundtable sought to further assess both the potential and the practical constraints of facilitating knowledge and technology sharing across sectors.

Through this forum, participants explored where and how defence capability—be it equipment, infrastructure, or data systems—might be adapted or scaled to enhance operational effectiveness and safety for first responders. Discussions highlighted a shared appetite for increased collaboration, alongside a recognition of challenges related to procurement protocols, interoperability, and cultural alignment.

This paper captures the key insights and strategic opportunities identified through this discussion and lays the groundwork for future policy and pilot initiatives. With increasing pressure on first response capabilities amidst natural disasters, public health emergencies, and evolving threat environments, the time is ripe for Australia to reimagine national capability

development not as a siloed effort, but a shared imperative across Defence and Emergency Response.

Australia's emergency services are at a critical juncture, confronting an increasingly complex array of challenges exacerbated by climate change, technological advancements, and evolving societal needs. The frequency and severity of natural disasters—bushfires, floods, cyclones—are intensifying, placing unprecedented demands on emergency response capabilities. Simultaneously, rapid technological evolution offers both opportunities and challenges in enhancing operational effectiveness.

Despite the availability of advanced technologies, a significant gap persists between innovation and implementation within emergency services. Systemic barriers, including fragmented procurement processes, limited cross-sector collaboration, and risk-averse cultures, hinder the adoption of solutions that could significantly bolster response capabilities. Small and medium enterprises (SMEs), often at the forefront of innovation, face substantial obstacles in contributing to emergency services due to complex accreditation requirements and limited engagement pathways.

This report, Future Frontlines, seeks to address these challenges by:

- Analysing the current state of emergency service capabilities and identifying critical gaps.
- Examining the systemic barriers impeding the adoption of innovative solutions.
- Proposing strategic recommendations to enhance collaboration, streamline procurement, and foster a culture of innovation.

By undertaking this analysis, the report aims to provide a roadmap for strengthening Australia's emergency services, ensuring they are equipped to meet current demands and adapt to future challenges through strategic collaboration and innovation

BRIDGING THE CAPABILITY GAP: ALIGNING INNOVATION WITH OPERATIONAL NEEDS

Australia's frontline agencies—particularly fire and emergency services, ambulance, and regional response units—are facing a growing scope of hazards and an increased operational tempo, all while working within capability frameworks that are often mismatched to the realities of the job. The roundtable discussion made clear that the existing technological landscape is not meeting the immediate and evolving needs of these services.

First responder agencies are being asked to operate across broader geographies and more complex threat environments than ever before—from dense urban environments to remote bushland, offshore zones, and isolated communities. However, when faced with the task of responding to high-risk, multi-hazard events in these settings, agencies are often forced to rely on outdated communications systems, limited situational awareness tools, and asset designs not fit for purpose.

One illustrative example raised during the discussion was the operational need for special operations ambulances to deploy into bushland during critical incidents. In such contexts, the ability to maintain visibility on paramedics operating in terrain with delayed backup response is not a luxury—it is a matter of responder safety. Technologies such as GPS tracking, body-worn communications, and UAVs (drones) for perimeter scanning already exist and are in use in military contexts. However, these solutions are not yet being scaled or adapted for civilian frontline use in a way that makes them immediately operational.

Compounding the issue is the current disconnect between capability developers—largely within the defence sector—and frontline agency procurement processes. Defence industry primes and SMEs often develop deployable technologies that are not designed or tested with first responder needs in mind. Where engagement does occur, it is often late-stage, with limited capacity for integration or co-design. Furthermore, agencies continue to identify radio communications as a critical operational shortfall, especially in regional and remote environments, where there are known Defence-grade solutions already tested for similar conditions.

Additional uncertainty has emerged around the long-term availability and security of satellite communication platforms, which while currently utilised in some response settings, face geopolitical and commercial constraints—particularly given recent tensions regarding their deployment and control. The reliance on commercially operated, foreign-owned platforms may present vulnerabilities for emergency services if engagement with sovereign capability developers remains limited.

This growing gap between available technology and frontline readiness is not the result of a lack of innovation—but a systems failure in integration and intent. Agencies know what they need. Industry often has the tools. But the pathways to align those needs with solutions are fragmented, risk-averse, and under-resourced.

Without targeted investment in adapting and operationalising defence-developed or dual-use capabilities, first responders will continue to face avoidable risks in the field. Australia cannot afford to treat emergency response capability as an afterthought to defence readiness—it must be understood as part of the same national resilience architecture.

This context underscores the need for a dedicated, cross-sector mechanism to translate innovation into action. The following chapter explores the structural, cultural, and policy barriers that have historically prevented this integration, and offers recommendations for overcoming them.



EXPANSION INTO NEW DOMAINS: MARITIME OPERATIONS AND CIVIL-DEFENCE INTEGRATION

Australia's vast maritime domain presents unique challenges for emergency response, particularly in regions like Western Australia where jurisdictional complexities and resource limitations hinder effective operations. Traditionally, maritime security and response have been managed by a combination of the Royal Australian Navy (RAN), Australian Border Force (ABF), and state agencies such as the Western Australia Police (WAPOL). However, this fragmented approach often leads to gaps in capability and coordination.

Recent discussions have highlighted the need for a dedicated maritime response entity, such as a Coast Guard, to alleviate the domestic operational burden on the RAN and provide a more cohesive approach to maritime emergencies. Jennifer Parker, an expert in maritime security, has extensively advocated for the establishment of an Australian Coast Guard to address these challenges and enhance national maritime security.

The tragic seaplane crash near Rottnest Island in January 2025 underscored the limitations of current maritime response capabilities. The incident required the engagement of defence industry partners to aid in recovery efforts, demonstrating both the potential and necessity for greater collaboration between defence and civilian agencies in maritime disaster response.

Leveraging existing defence maritime assets for civil emergency response offers a promising avenue for enhancing Australia's disaster preparedness. Vessels capable of rapid deployment, equipped with facilities such as helicopter landing pads, mobile hospitals, and evacuation accommodations, could be instrumental in responding to large-scale natural disasters, especially in remote coastal regions. The integration of such capabilities would not only improve response times but also provide a platform for joint training and operations between defence and civilian agencies.

The 2023 Defence Strategic Review emphasises a shift in the Australian Defence Force's focus towards national defence and long-range capabilities, suggesting a reduced role in domestic emergency response. This strategic pivot further accentuates the need for alternative solutions to bolster maritime emergency response capabilities.

Investing in maritime capabilities with a focus on collaboration between defence industry partners and civilian agencies is essential. Such an approach would enhance Australia's ability to respond to maritime emergencies effectively, ensure better utilisation of existing defence technologies, and foster a more integrated national response framework.



BARRIERS TO ACCESSING CAPABILITY: PROCUREMENT REFORM AND COLLABORATIVE INNOVATION

Across Australia's emergency services landscape, there is a recurring and deeply concerning pattern: the tools and technologies required to strengthen national response capabilities already exist, yet remain frustratingly out of reach. This disconnect is not due to a lack of innovation, but to fragmented procurement systems, siloed development processes, and a lack of structured cross-sector engagement that leaves frontline agencies without access to the very solutions that could enhance their safety and performance.

During the roundtable, participants shared frustrations with the current approach to capability acquisition. While Defence operates through formal pathways such as the Capability Acquisition and Sustainment Group (CASG), which provides structure for project planning, industry engagement, and procurement, emergency services have no equivalent national framework. As a result, state and territory agencies are often left to develop capability independently, without shared platforms for co-design or innovation testing. This leaves emergency services largely unaware of what is possible and defence industry with little incentive to adapt technologies for civilian use.

This challenge is exacerbated by a culture of institutional risk aversion. Government agencies too often prioritise procedural safety over innovation, opting for legacy systems that meet minimal requirements rather than exploring modern solutions. The reluctance to engage in early-stage trials or to invest in pilot programs has led to a situation where promising technologies stagnate—unproven not because they lack merit, but because they are never given the chance. As one roundtable participant aptly put it, “We can’t wait for a disaster to test.” And yet, that is exactly what the current system appears willing to do.

For Australia's small and medium enterprises (SMEs), the obstacles are even more significant. Many innovative SMEs face an uphill battle to participate in procurement. Complex accreditation requirements, high administrative burdens, and a reliance on large-scale trade

shows or expos to win attention create a dynamic that favours scale and existing relationships over innovation and merit.

Even for those businesses that succeed in entering the defence supply chain, the effort required to maintain compliance and contracts often monopolises their resources, leaving little room to explore civilian markets or adapt technologies for dual-use potential. In the absence of dedicated funding or visible demand, many of these cutting-edge solutions remain undeployed in the spaces that could benefit from them most.

This siloed and bureaucratic approach disincentivises cross-market innovation and obstructs the development of a shared national capability. Without significant reform, Australia risks repeating in the emergency services sector the same bottlenecks and limitations that have historically burdened defence procurement—just as the demand on our emergency response systems grows in scale, complexity, and urgency.

To close this gap, there is an urgent need to establish a structured, national capability development framework for emergency services—one that mirrors Defence's strategic approach but is fit-for-purpose for first responders. Such a framework would allow agencies to articulate operational needs, engage industry early, trial technologies in real-world settings, and move more quickly from design to deployment. Crucially, it would provide a national structure for sharing lessons, aligning procurement decisions, and avoiding duplication across jurisdictions.

Alongside this, a dedicated program should be developed to support the formal transfer and adaptation of defence technologies for use in emergency settings. A Defence-to-Responder Technology Transfer Program would provide the visibility, relationships, and support required to translate existing innovations—many already field-tested in defence contexts—into viable, scalable tools for civilian agencies.

At the same time, governments must meaningfully address the procurement challenges faced by SMEs. This includes streamlining accreditation processes, reducing administrative complexity, and creating standing offer arrangements that are realistic for small businesses to engage with.

Only by removing these barriers can governments unlock the full potential of the Australian innovation ecosystem and ensure the sustainability of sovereign capability development.

The importance of investing in modular, scalable response assets—including maritime platforms—was also a key theme of the roundtable. Participants spoke of the potential to deploy hospital-capable vessels, landing craft, and offshore response bases that could be on scene within 48 hours, offering logistical support, medical infrastructure, and evacuation capability. The technology to deliver these solutions already exists within defence and maritime industry, but without clear procurement pathways or multi-agency coordination, they remain largely out of scope for emergency service operations.

Creating dedicated joint testing environments would also help agencies and industry collaborate more effectively. These environments—whether in the form of simulations, controlled field exercises, or training scenarios—would provide a low-risk, high-value setting for proving concepts and accelerating innovation adoption. Crucially, they would also allow frontline personnel to provide feedback that informs iterative improvement, ensuring capability is both operationally relevant and technically sound.

To support this shift, governments must embed interoperability and joint-use criteria into their procurement planning. New systems should be designed not in isolation but with the intention of being shared, deployed, and maintained across multiple agencies and jurisdictions. Standardising communications systems, protocols, and digital infrastructure is critical to enabling whole-of-nation capability that can scale quickly in the face of disaster.

Finally, underpinning all of this is the need for cultural change. Public sector agencies must be empowered—and supported—to take calculated risks.

Trialling new technology, adapting existing tools, and testing innovative approaches before disaster strikes should be seen not as a risk, but as a requirement of responsible service delivery. Emergency services deserve the best possible tools for the job. That begins with creating the systems that allow them to find, test, and adopt those tools—before the need becomes critical.

By addressing these structural and cultural barriers, Australia can move from reactive purchasing to strategic capability building. The opportunity to lead is here—but we must design the frameworks that allow leadership to flourish.



FUTURE-PROOFING EMERGENCY SERVICES: BUILDING RESILIENCE THROUGH INNOVATION & COLLABORATION

As Australia confronts an increasingly complex landscape of natural disasters, technological advancements, and evolving societal needs, the imperative to future-proof our emergency services has never been more pressing. The 2023 Defence Strategic Review underscores a shift in the Australian Defence Force's focus towards national defence and long-range capabilities, suggesting a reduced role in domestic emergency response. This strategic pivot accentuates the need for alternative solutions to bolster emergency response capabilities.

Embracing Technological Innovation

The integration of advanced technologies such as artificial intelligence, unmanned systems, and data analytics can significantly enhance the efficiency and effectiveness of emergency responses. However, the adoption of these technologies requires a proactive approach to research, development, and implementation. Collaborative efforts between government agencies, industry partners, and academic institutions are essential to drive innovation and ensure that emergency services are equipped with cutting-edge tools.

Strengthening Industry Partnerships

Small and medium enterprises (SMEs) play a crucial role in developing innovative solutions tailored to the unique challenges faced by emergency services. Yet, these enterprises often encounter barriers such as complex procurement processes and limited access to funding opportunities. Streamlining procurement frameworks and providing targeted support can empower SMEs to contribute effectively to the emergency management sector.

Enhancing Workforce Capabilities

Future-proofing emergency services also involves investing in the workforce. Continuous training and professional development are vital to ensure that personnel are adept at utilising new technologies and methodologies.

Moreover, fostering a culture of adaptability and continuous learning within emergency services can enhance resilience and readiness for unforeseen challenges.

Enhancing Interagency Collaboration and Governance

Effective emergency response requires seamless coordination among various agencies and levels of government. Establishing unified command structures and interoperable communication systems is vital to ensure that resources are efficiently allocated and that agencies can operate cohesively during crises.

The adoption of standardised protocols and joint training exercises can further strengthen interagency collaboration, enabling a more agile and effective response to emergencies.

Moreover, integrating community-based organisations and volunteers into emergency planning processes can enhance resilience at the grassroots level. Empowering communities with the knowledge and tools to respond to emergencies not only bolsters local capacity but also ensures that response efforts are culturally appropriate and contextually relevant.

Addressing Climate Change and Environmental Challenges

Climate change poses a significant threat to Australia's emergency management landscape, with increasing frequency and severity of natural disasters such as bushfires, floods, and cyclones. To future-proof emergency services, it is crucial to incorporate climate adaptation strategies into planning and operations. This includes investing in infrastructure resilient to extreme weather events, developing predictive models to anticipate and mitigate potential disasters, and integrating environmental considerations into emergency response protocols.

Engaging with initiatives like the Emergency Leaders for Climate Action can provide valuable

insights into the intersection of climate change and emergency management, guiding the development of policies and practices that enhance resilience.

Fostering a Culture of Continuous Improvement

Continuous evaluation and learning are essential components of a resilient emergency management system. Implementing mechanisms for after-action reviews, knowledge sharing, and lessons learned can drive ongoing improvements in policies, procedures, and capabilities.

Encouraging a culture that values feedback and adaptation ensures that emergency services remain responsive to evolving challenges and can effectively incorporate new insights into their operations.

Additionally, investing in the professional development of emergency service personnel, including training in emerging technologies and adaptive leadership, can enhance the capacity of agencies to navigate complex and dynamic environments.

Future-proofing Australia's emergency services is a multifaceted endeavour that demands strategic investment, technological innovation, and robust collaboration across sectors. By addressing current limitations and proactively preparing for emerging challenges, we can build a resilient emergency management framework capable of safeguarding communities now and in the future.



CONCLUSION: BRIDGING INNOVATION AND RESPONSE

Australia's emergency services stand at a pivotal juncture, confronting escalating challenges that demand agile, interoperable, and forward-thinking solutions. Our exploration reveals that the capabilities required to meet these demands largely exist within our sovereign defence industry. However, systemic barriers—fragmented procurement processes, limited cross-sector collaboration, and risk-averse cultures—impede the translation of these innovations into operational readiness for first responders.

The imperative is clear: we must dismantle these barriers and foster a cohesive ecosystem where defence innovations seamlessly integrate into emergency response frameworks. This necessitates procurement reforms at agency, state, and federal levels, streamlined research and development pathways, and robust support for SMEs poised to contribute to this mission.

As we anticipate future crises, the adage resonates profoundly: "We can't wait for a disaster to test." Proactive investment, collaborative innovation, and strategic foresight are essential to ensure our emergency services are equipped not just for today's challenges but for those on the horizon. By uniting government, industry, and frontline agencies in this endeavour, we can build a resilient, responsive, and future-proof emergency management landscape for Australia.

The subsequent recommendations aim to provide actionable steps toward achieving these objectives, ensuring that Australia's emergency services are robust, responsive, and ready to safeguard communities in an increasingly complex world.



RECOMMENDATIONS

To address the challenges and opportunities identified throughout this report, the following recommendations are proposed to enhance the capabilities and resilience of Australia's emergency services:

1. Establish a National Emergency Services Capability Development Framework

Create a structured framework, akin to Defence's Capability Acquisition and Sustainment Group (CASG), dedicated to emergency services. This framework would guide the identification, development, and procurement of capabilities tailored to emergency services, ensuring a coordinated and strategic approach across all levels of government.

2. Implement a Defence-to-Responder Technology Transfer Program

Develop a formal program to facilitate the adaptation and integration of existing defence technologies into emergency services. This initiative would encourage collaboration between defence industries and emergency response agencies, ensuring that innovations are tailored to the operational realities of frontline responders.

3. Reform Procurement Processes to Empower SMEs

Simplify procurement processes to reduce barriers for small and medium enterprises (SMEs), enabling them to contribute innovative solutions to emergency services without disproportionate administrative burdens. This includes streamlining accreditation processes and providing clear pathways for SMEs to engage with government contracts.

4. Invest in Modular and Scalable Maritime Capabilities

Develop maritime assets that can be rapidly deployed for disaster response, including vessels equipped for medical support, evacuation, and logistics. These assets would enhance reach to remote and regional areas, serving as platforms for recovery and evacuation operations.

5. Establish Joint Innovation and Testing Environments

Create platforms for emergency services, defence industries, and other stakeholders to collaboratively test and refine technologies in realistic scenarios. These environments would facilitate the transition from innovation to implementation, ensuring readiness and efficacy of new technologies.

6. Promote Interagency Collaboration and Interoperability

Encourage the development of interoperable systems and protocols across agencies to ensure cohesive and efficient responses to emergencies. This includes standardising communication systems and operational procedures to facilitate seamless coordination during multi-agency responses.

7. Develop a National Emergency Services Innovation Fund

Establish a dedicated fund to support research, development, and implementation of innovative solutions tailored to the evolving needs of emergency services. This fund would enable agencies to invest in cutting-edge technologies and methodologies that enhance operational effectiveness.

8. Enhance Training and Professional Development

Invest in continuous training programs to ensure emergency services personnel are equipped with the skills and knowledge to effectively utilise new technologies and methodologies. This includes training in emerging technologies and adaptive leadership to navigate complex and dynamic environments.

9. Establish Clear Governance Structures for Capability Integration

Define roles, responsibilities, and processes to oversee the integration of new capabilities into emergency services. This would ensure accountability and strategic alignment across agencies and levels of government.

10. Foster a Culture of Innovation and Risk-Tolerance

Encourage a shift in organisational culture to embrace innovation and calculated risk-taking in the pursuit of enhanced capabilities. This includes promoting proactive testing and continuous improvement to ensure emergency services are not only equipped for today's challenges but are resilient against future uncertainties.

By implementing these recommendations, Australia can strengthen its emergency services, ensuring they are equipped to meet current demands and adapt to future challenges through strategic collaboration and innovation.





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