



Trusted to Protect

Commonwealth Electronic Counter Measures (ECM) Procurement Guide

Principles for Capability Acquisition, Vehicle Integration and Whole-of-Life Sustainment



Version 4.5 October 2026

Prepared by Sonny Lynn, MSc, MMgt, qtc

Contents

Executive Summary	1
1 Introduction	2
2 Common Mistakes	2
2.1 Introduction	2
2.2 Mistake 1 – Defining Requirements Around a Preferred Product	3
2.3 Mistake 2 – Comparing Equipment Prices Instead of Total Program Costs	3
2.4 Mistake 3 – Treating Integration as an Installation Activity	4
2.5 Mistake 4 – Underestimating Sustainment Requirements	4
2.6 Key Lessons	4
3 Defining the Requirement	2
3.1 Requirements Should Be Driven by the Operational Need	2
3.2 Understanding the Threat	2
3.3 Understanding the Operating Environment	2
3.4 Defining the Required Operational Outcome	3
3.5 Understanding Platform and Fleet Requirements	3
3.6 Validating the Requirement	3
3.7 Key Takeaway	3
4 Capability Assessment and Source Selection	4
4.1 Avoiding Specification-Based Procurement	4
4.2 Why Power Is Not a Sufficient Discriminator	4
4.3 Why Frequency Coverage Is Not a Sufficient Discriminator	4
4.4 Validating Vendor Claims	5
4.5 Evaluating Operational Effectiveness	5
4.6 Key Takeaway	5
5 Fleet Integration and Architecture Preservation	6
5.1 Looking Beyond the Capability in Isolation	6
5.2 Preserving Existing Commonwealth Investment	6
5.3 Vehicle Installation Kits and Integration Infrastructure	6
5.4 Antennas and RF Architecture	7
5.5 Size, Weight, Power and Cooling Considerations	7
5.6 Electromagnetic Compatibility	7
5.7 Certification and Assurance Impacts	7
5.8 Fleet Commonality and Standardisation	8
5.9 Key Fleet Integration Takeaways	8
6 Sustainment and Whole-of-Life Considerations	8
6.1 Looking Beyond Acquisition	8
6.2 Training and Workforce Considerations	9
6.3 Mission Data Support	9

6.4	Configuration Management.....	9
6.5	Obsolescence and Capability Evolution.....	10
6.6	Dependence on Original Equipment Manufacturers	10
6.7	Technical Data and Intellectual Property	10
6.8	Sovereign Support Considerations	11
6.9	The Value of Existing Fleet Knowledge	11
6.10	Long-Term Cost Considerations	11
6.11	Key Sustainment Takeaways.....	11
7	Conclusion	12

Executive Summary

Electronic Counter Measures (ECM) capabilities play a critical role in protecting personnel, vehicles, infrastructure and other critical assets from Radio Frequency (RF) initiated threats. Unlike many conventional equipment procurements, ECM effectiveness is influenced by a complex interaction of threat, platform, hardware, software, mission data, platform integration, certification, sustainment arrangements and operational employment considerations. As a result, procurement decisions based solely on technical specifications or acquisition cost may fail to deliver the required operational outcome and can expose the Commonwealth to unnecessary project cost, risk and schedule impacts, as well as increased risk to Commonwealth personnel.

This guide has been developed to assist Commonwealth personnel involved in the procurement, integration and sustainment of ECM capabilities. It highlights a number of common procurement mistakes observed across capability acquisition activities and identifies key considerations informing decision-making throughout the procurement lifecycle. The guide is intended to support informed decision-making by helping procurement personnel ask the right questions, recognise areas of potential risk and engage appropriate specialist expertise where required.

The guide identifies four common mistakes capable of adversely affecting the cost, timeframe and effectiveness of ECM procurements:

- 1) Defining requirements around a preferred product rather than around the specific operational requirement.
- 2) Assessing ECM capabilities primarily through technical specifications rather than demonstrated operational effectiveness.
- 3) Failing to adequately consider platform integration, certification impacts and existing Commonwealth investments.
- 4) Underestimating sustainment, supportability and whole-of-life cost considerations.

To address these challenges, procurement authorities should begin by establishing a clear understanding of the threat environment, operating context and desired operational effect before approaching the market. Capability assessment should focus on demonstrated performance against operational requirements rather than raw comparisons of transmission power, frequency coverage or other individual technical characteristics. Similarly, evaluation activities should consider how a proposed capability integrates with existing fleet architecture, including Vehicle Installation Kits (VIK), antenna systems, certification artefacts and established support arrangements.

The guide also emphasises the importance of considering maintenance, repair and sustainment arrangements from the outset. Long-term capability effectiveness depends upon more than the equipment itself and requires consideration of training, mission data support, configuration management, obsolescence planning, technical data access, sovereign support arrangements including inspection, maintenance and repair and the retention of valuable fleet knowledge. Decisions failing to account for these factors may result in increased ownership costs, reduced operational flexibility and growing dependence on external providers.

Ultimately, successful ECM procurement is achieved through the selection of a capability delivering the required operational effect, integrated efficiently with the intended fleet, remaining supportable throughout its service life and providing enduring value for money (VFM) to the Commonwealth. By adopting a structured and evidence-based approach to procurement, organisations can reduce risk, preserve existing Commonwealth investments and improve the likelihood of achieving a successful capability outcome.

1 Introduction

ECM is a specialised capability employed to protect personnel, vehicles and critical assets from RF initiated threats, including Improvised Explosive Devices (IEDs) . Unlike many technology procurements, the true effectiveness of an ECM capability cannot be determined through examination of hardware specifications alone. Operational effectiveness is influenced by the interaction of platform, hardware, software, mission data, platform integration, certification, sustainment arrangements and the environments in which the capability will be employed.

As a result, ECM procurements present unique challenges. Decisions based solely on factors such as transmission power, frequency coverage or acquisition cost may overlook critical considerations ultimately determining whether a capability is effective, supportable and suitable for Commonwealth service. Procurement decisions failing to adequately consider operational requirements, integration impacts, certification burdens or long-term sustainment can result in increased cost, schedule delays, reduced operational effectiveness and the unnecessary replacement of existing Commonwealth investments.

This guide has been developed to assist Commonwealth personnel involved in the procurement, integration and sustainment of ECM capability. It identifies common procurement mistakes, highlights key considerations informing decision-making, and provides a framework for assessing capability options throughout the procurement lifecycle.

The guide is intended as a procurement decision-support document rather than a detailed Electronic Warfare (EW), engineering or integration manual. It does not seek to prescribe technical solutions or replace specialist operational, engineering, certification or sustainment advice. Instead, it aims to help decision makers ask the right questions, recognise areas of risk and engage appropriate subject matter expertise when required.

2 Common Mistakes

2.1 Introduction

Many ECM procurement activities commence with the objective of improving capability, replacing obsolete equipment, reducing support costs, or meeting new or changed operational requirements. Despite these good intentions, programs frequently experience schedule delays, budget overruns, integration difficulties, or reduced operational outcomes because key procurement considerations are addressed too late in the decision-making process, or not at all.

Unlike many standalone technologies, ECM systems are highly dependent on their integration environment. The effectiveness of an ECM capability is not determined solely by the equipment itself, but by the combined performance of the platform, hardware, software, mission fill, platform integration, support arrangements, training system, and operational employment concept.

A common failure in ECM procurement is the tendency to focus on the ECM “box” while underestimating the additional complexity and cost associated with integrating, sustaining, and operating the capability. The result is often a procurement appearing cost-effective during initial evaluation but proving significantly more expensive and difficult to field and sustain once implementation activities commence.

This chapter examines the most common mistakes observed during ECM procurement activities. Understanding these pitfalls assists procurement authorities in avoiding costly decisions or delays and establishes the foundation for the structured procurement methodology described in subsequent chapters.

2.2 Mistake 1 – Defining Requirements Around a Preferred Product

One of the most common procurement errors is to develop requirements around a specific product rather than defining the operational outcome to be achieved.

This often occurs when a stakeholder has prior experience with a particular ECM solution, has received vendor demonstrations, has developed a preference for a specific manufacturer, or is seeking interoperability with allies. Requirements are subsequently written in a manner naturally favouring the desired solution.

While this approach may appear logical, it frequently overlooks broader program considerations., including:

- Existing vehicle integration designs.
- Fleet commonality requirements.
- Existing mission fill generation and management processes.
- In-service support arrangements.
- Operator and maintainer training systems.
- Existing test and certification artefacts.
- Electromagnetic Compatibility (EMC) considerations.
- Future growth requirements.

An ECM system appearing technically superior in isolation may ultimately deliver a poorer procurement outcome if it introduces substantial integration complexity, schedule uncertainty, sustainment burden, or lifecycle cost.

2.3 Mistake 2 – Comparing Equipment Prices Instead of Total Program Costs

A second common procurement mistake is to compare competing technologies based primarily on the hardware acquisition price without understanding the total cost of ownership. For ECM procurements, the equipment itself often represents only a portion of the total program cost.

Hidden Costs Commonly Overlooked include, but not limited to:

- Vehicle Integration Kit (VIK) redesign.
- Antenna redesign, replacement or relocation.
- Cabling modifications.
- Mechanical mounting changes.
- EMC testing.
- Vehicle certification activities.
- Safety case development.
- Mission fill development, validation & verification and techniques utilised.
- Training system updates.
- Technical publication amendments.
- Introduction of new support equipment.

Individually, these costs may appear manageable; however, collectively they can exceed the original acquisition cost differential between competing solutions. Consequently, the least expensive ECM system is not always the least expensive procurement outcome. Acquisition, integration and sustainment costs should be considered as a single, holistic investment decision rather than assessed in isolation.

Numerous ECM procurements have focused primarily on the equipment itself, only to experience schedule delays, capability shortfalls and budget issues when the broader costs of integration, certification, training, infrastructure and long-term sustainment were subsequently realised. Effective procurement therefore requires consideration of whole-of-life costs rather than simply the initial purchase price of the equipment.

Existing Commonwealth fleets often embody years of engineering effort, integration development, vehicle certification activities, technical documentation, maintenance procedures and operator training. Procurement decisions focused solely on acquisition of new or replacement equipment may inadvertently discard significant Commonwealth investment already made in achieving and sustaining operational capability.

2.4 Mistake 3 – Treating Integration as an Installation Activity

A frequent misconception is installing an ECM system is equivalent to integrating it. Installation simply places equipment onto a platform. Integration ensures the equipment performs safely and effectively within the platform's operational, electrical and electromagnetic environment. Successful integration must consider:

- Vehicle power availability.
- Peak power demand.
- Thermal management.
- Antenna placement.
- Radiation hazards.
- Electromagnetic interference.
- Communication Requirements
- Vehicle Operation – Key Fob
- Crew ergonomics.
- Survivability requirements.
- Maintainability considerations.

Failure to address these factors early can result in substantial redesign effort once deficiencies are discovered during testing or operation.

2.5 Mistake 4 – Underestimating Sustainment Requirements

Procurement decisions are often made with significant emphasis on acquisition costs while insufficient attention is paid to sustainment. An ECM capability remains effective only if:

- Mission fills remain current against the threat.
- Software versions remain supported.
- Hardware remains repairable.
- Spares remain available.
- Technical support remains accessible.

A solution with lower acquisition cost but poor sustainment arrangements may incur substantially higher costs over its operational life. Decision-makers should therefore consider the entire system lifecycle rather than simply the initial procurement event.

2.6 Key Lessons

The most costly ECM procurement mistakes rarely result from selecting an inferior technology. More commonly, they stem from failing to evaluate the capability as a complete system throughout its lifecycle. Procurement authorities should therefore avoid:

- Selecting a product before defining the operational requirement.
- Comparing equipment prices alone instead of total program costs.
- Treating integration as a simple installation activity.
- Underestimating sustainment requirements.

The organisations achieving the most successful procurement outcomes are typically those focusing on operational effect, lifecycle cost, integration risk, and long-term supportability rather than equipment specifications alone.

3 Defining the Requirement

3.1 Requirements Should Be Driven by the Operational Need

The foundation of any successful ECM procurement is a clear understanding of the operational requirement. Before evaluating technologies or engaging with industry, organisations should first determine the operational effect they are seeking to achieve and the threats the capability must counter. Procurements beginning with a preferred product, vendor, or technical solution risk overlooking alternative approaches capable of delivering a superior operational outcome at lower cost, lower risk, or having greater compatibility with existing Commonwealth capability.

Requirements should therefore be derived from an evidence-based assessment of the threat, operating environment, platform constraints, and operational objectives. Defining these factors early provides a structured basis for capability evaluation and helps ensure procurement decisions remain focused on operational outcomes rather than product specifications.

3.2 Understanding the Threat

What threat is being countered? A capability can only be assessed against a clearly defined threat. Understanding the threat environment assists in determining the level of protection required, identifying essential and desirable capability characteristics, and establishing meaningful evaluation criteria.

Threat assessments should consider:

- Current and emerging threats.
- Likely threat tactics, techniques and procedures.
- Threat frequency utilisation and operating methods.
- Expected threat evolution throughout the capability lifecycle.
- The consequences of capability failure.

Requirements lacking a link to a defined threat should be carefully challenged to ensure they are delivering genuine operational value. Current, emerging and future threats should be continuously monitored and assessments regularly updated.

3.3 Understanding the Operating Environment

In what environments will the system operate? Capabilities suitable for one operating environment may not necessarily be suitable for another. Environmental, geographical, operational and logistic factors may significantly influence capability selection and sustainment requirements.

Considerations may include:

- Domestic and expeditionary operations.
- Urban, rural and remote environments.
- Coalition or partnered operations.
- Vehicle-mounted, dismounted or fixed-site applications.
- Climatic and environmental conditions.

- Changes in the electromagnetic environment , such as 5G mobile phone networks

Procurement authorities should ensure operating environments are clearly defined before approaching the market, as these factors will influence both capability requirements and integration considerations.

3.4 Defining the Required Operational Outcome

What tactical outcomes are required? Procurements should focus on the operational effect required rather than the technology used to achieve it. Defining the desired outcome allows industry to propose options and solutions suited to the requirement while reducing the risk of unintentionally favouring a specific product.

By focusing on the operational outcome, organisations are better positioned to evaluate competing solutions objectively and demonstrate VFM.

3.5 Understanding Platform and Fleet Requirements

What platforms will employ the capability? Capabilities should not be assessed in isolation from the platforms and fleets they are intended to support. Existing vehicle architecture, platform limitations, legacy investments, operator concepts and sustainment arrangements will all influence what constitutes a suitable solution.

Assessment activities should consider:

- Fleet size and diversity.
- Existing integration architectures.
- Available space, weight and power (SWaP).
- Existing certification evidence.
- Fleet commonality objectives.
- Future platform refresh/growth requirements.

A solution performing well in isolation may introduce unnecessary complexity or cost if it cannot be easily integrated into the intended fleet.

3.6 Validating the Requirement

Are the requirements operationally derived? Requirements should be traceable to an identified operational need rather than vendor demonstrations, historical preferences, or assumptions. Procurement authorities should be able to demonstrate how each essential requirement contributes to achieving the required operational outcome.

Where possible, requirements should be reviewed by operational users, technical specialists and relevant stakeholders to ensure assumptions have been validated and the requirement accurately reflects the operational problem being addressed.

3.7 Key Takeaway

Successful ECM procurements begin with a clear understanding of the threat, the operating environment, the desired operational outcome, and the platforms employing the capability. Organisations defining requirements around the operational effect to be achieved are more likely to identify the most effective solution, avoid unnecessary procurement bias, and achieve VFM throughout the capability lifecycle. This approach directly mitigates the risk identified in Mistake 1: defining requirements around a preferred product rather than the operational requirement itself.

4 Capability Assessment and Source Selection

4.1 Avoiding Specification-Based Procurement

Having established the operational requirement, the next step is to assess potential solutions capable of delivering the required effect. A common procurement mistake is to compare ECM systems using a small number of technical specifications, such as transmission power, frequency coverage or processing performance, without understanding how those characteristics contribute to operational effectiveness.

While technical specifications remain an important consideration, they should be assessed within the broader context of the operational requirement, intended employment concept, platform integration constraints and sustainment considerations. Procurement decisions based solely on a comparison of specification sheets may favour a system appearing superior on paper but delivering limited additional operational benefit in service. The objective of capability assessment should therefore be to determine which solution best delivers the required operational outcome, rather than simply which solution presents the most favourable technical specification.

4.2 Why Power Is Not a Sufficient Discriminator

A common misconception is a higher transmission power equates to a more effective ECM capability. While transmission power contributes to overall system performance, it is only one factor influencing operational effectiveness.

Two systems may possess similar transmission power yet achieve markedly different operational outcomes because ECM effectiveness is influenced by far more than transmitter output alone. Factors such as antenna design and placement, the Electronic Attack (EA) techniques employed, receiver sensitivity, threat detection performance, signal processing capability, the quality and currency of mission data, and the manner in which the system has been integrated onto the host platform can all significantly affect overall effectiveness. Accordingly, transmission power should be viewed as only one contributor to performance rather than a direct measure of capability effectiveness.

Procurement authorities should therefore avoid using transmission power as a primary discriminator and instead seek to understand how the complete system performs against representative operational scenarios.

4.3 Why Frequency Coverage Is Not a Sufficient Discriminator

Another common procurement mistake is assuming broader frequency coverage automatically represents a better solution. Capability requirements should be driven by the threat assessment rather than by achieving the widest possible frequency range. Coverage beyond the identified threat environment may add cost, complexity, integration burden and sustainment requirements without delivering meaningful operational benefit. Similarly, frequency coverage alone provides little insight into how effectively a system can identify, prioritise and counter relevant threats.

Consideration should therefore be given to whether the proposed frequency coverage aligns with the identified threat environment and delivers effective protection against the RC threats expected to be encountered. Assessment should examine how effectively the capability performs across the relevant threat spectrum, its ability to detect, prioritise and manage multiple simultaneous threats, and the flexibility of the system to adapt as threat technologies evolve. Equal consideration should also be given to the processes, resources and governance arrangements required to maintain and update mission data throughout the capability lifecycle.

Ultimately, the key consideration is not how much spectrum a system covers, but whether it can consistently and effectively counter the threats it is likely to face during operational employment.

4.4 Validating Vendor Claims

Industry engagement is an important component of the procurement process. However, marketing material, presentations and product demonstrations should not be relied upon as the sole source of performance evidence.

Vendor claims are often derived from testing conducted under specific conditions potentially differing significantly from the intended Commonwealth operating environment. Variations in terrain, platform architecture, antenna placement, electromagnetic congestion, operator procedures and operational employment concepts can all influence actual performance outcomes and may result in capability performance differing from the performance presented during demonstrations or marketing activities.

Procurement authorities should therefore seek objective evidence demonstrating system performance under representative conditions, including independent testing outcomes, operational user evaluations, verification and validation activities, certified performance data, evidence of successful fielded use and demonstrated integration experience on comparable platforms. Particular caution should be exercised where performance comparisons are made against a competitor's system without sufficient transparency regarding the test methodology, assumptions, threat profiles, platform configurations or operating conditions under which the comparison was conducted.

4.5 Evaluating Operational Effectiveness

The ultimate measure of an ECM capability is not its specification sheet, but its ability to deliver the required operational outcome. Evaluation activities should therefore focus on operational effectiveness rather than individual technical characteristics. This approach encourages objective comparison and allows decision makers to assess competing solutions against the capability need identified during the requirements definition phase.

Assessment criteria should consider the capability's demonstrated ability to counter the identified threats, perform effectively within representative operational environments, and integrate successfully with the intended platform while minimising technical, certification and schedule risk. Evaluation should also examine the impact on existing fleet architecture and Commonwealth investments, the training burden imposed on operators and maintainers, the ongoing supportability and sustainment requirements of the solution, its adaptability to evolving threats and operational requirements, and the resulting whole-of-life cost to the Commonwealth. Testing and evaluation activities should, wherever practicable, replicate realistic operating conditions to ensure capability decisions are based on demonstrated operational performance and evidence-based outcomes rather than theoretical assessments or specification sheet comparisons alone.

4.6 Key Takeaway

Specifications such as transmission power, frequency coverage and processing performance provide useful technical insights but should not be used as the sole basis for capability selection. Successful source selection requires an understanding of how a complete system performs against the defined operational requirement, supported by objective evidence and validated through representative testing. By focusing on demonstrated operational effectiveness rather than individual technical metrics, procurement authorities can reduce the risk of selecting a capability which appears capable on paper but fails to deliver the required protective effect in service.

5 Fleet Integration and Architecture Preservation

5.1 Looking Beyond the Capability in Isolation

A common procurement mistake is to assess an ECM system as a standalone capability without considering the broader vehicle, platform or fleet into which it will be integrated. While a capability may demonstrate strong technical performance during evaluation, the true cost, risk and schedule implications are often determined by the effort required to integrate, certify and sustain the capability within an existing fleet. In many cases, the Commonwealth has already invested significant resources in vehicle integration kits, antenna systems, cabling infrastructure, certification activities, technical documentation, training systems and support arrangements. Failure to account for these existing investments can result in unnecessary cost, duplication of effort and the loss of valuable engineering knowledge.

Accordingly, procurement decisions should consider not only the capability being acquired, but also the impact of this decision on the broader fleet architecture, its Life of Type and the investments already made in bringing a capability into service.

5.2 Preserving Existing Commonwealth Investment

ECM systems rarely exist in isolation. Over time, considerable effort is often invested in designing, integrating, testing and certifying a vehicle architecture capable of supporting ECM capability. This architecture may include VIK, antenna mounting arrangements, power distribution systems, cabling harnesses, equipment brackets, EMC treatments and supporting documentation.

Where elements of an existing fleet architecture have demonstrated acceptable performance and remain suitable for future requirements, strong consideration should be given to preserving those elements wherever practical. Replacing a complete architecture simply because an ECM electronic unit has reached obsolescence may introduce unnecessary integration, certification and sustainment costs outweighing any perceived benefits.

Procurement authorities should therefore consider whether the operational requirement can be achieved through replacement or upgrade of selected subsystem components rather than a complete redesign of the installed architecture.

5.3 Vehicle Installation Kits and Integration Infrastructure

The VIK often represents one of the most significant elements of fleet integration investment. Beyond the physical components themselves, the associated engineering design, installation procedures, safety assessments and certification evidence may represent years of accumulated effort.

Where a new ECM capability is being considered, assessment should determine whether the proposed solution can interface with existing vehicle infrastructure or whether extensive redesign activities will be required. Even where replacement of certain hardware elements is unavoidable, opportunities may exist to retain significant portions of the existing architecture, reducing both program risk and integration effort.

The objective should be to maximise the value obtained from previous Commonwealth investment while ensuring operational requirements continue to be met.

5.4 Antennas and RF Architecture

Antenna systems are often among the most challenging aspects of ECM integration. Vehicle antenna placement is typically influenced by vehicle geometry, RF performance requirements, cabling constraints, crew safety considerations and certification outcomes.

Procurement decisions failing to recognise these factors may underestimate the complexity associated with replacing antenna systems. Introduction of new antennas may require structural modifications, revised cable routing, additional safety assessments and re-evaluation of EMC performance.

Consequently, assessment should consider whether existing antenna infrastructure remains suitable for future requirements and what impacts may arise if replacement becomes necessary. The cost of replacing antenna architecture frequently extends well beyond the hardware itself.

5.5 Size, Weight, Power and Cooling Considerations

Size, Weight and Power (SWaP) considerations often represent a major constraint when integrating ECM capability into new or existing platforms.

A solution performing effectively in a laboratory environment may prove unsuitable if the host platform lacks sufficient space, available power generation capacity, mounting locations or cooling resources. Similarly, introducing additional equipment may affect vehicle balance, payload capacity, electrical loading or maintenance accessibility.

SWaP considerations should therefore be assessed early in the procurement process. Understanding the available platform margins allows procurement teams to identify integration risks before capability selection occurs and reduces the likelihood of selecting a technically capable solution unable to be practically integrated into the intended fleet.

5.6 Electromagnetic Compatibility

EMC assessment is a critical but often underestimated aspect of ECM procurement. Unlike many vehicle systems, ECM capabilities are intentionally designed to transmit significant RF energy into the operating environment. This creates the potential for unintended interactions with other installed electronic systems including communications equipment, navigation systems, battle management systems, sensors and vehicle functions (e.g. key fob operation).

Even relatively minor architecture changes may require reassessment of EMC performance to ensure the introduction of a new capability does not adversely affect existing platform functionality. Procurement decisions should therefore recognise EMC as not solely a compliance activity but an essential component of platform safety, operational effectiveness and certification assurance.

5.7 Certification and Assurance Impacts

Procurement teams frequently focus on acquisition costs while underestimating the certification burden associated with capability change.

Existing ECM installations may already be supported by substantial bodies of engineering evidence demonstrating safety, performance and suitability for service. Where major architectural changes are introduced, some or all of this evidence may require review, amendment or replacement.

These activities can represent a significant portion of total program cost and schedule. Procurement authorities should therefore consider certification impacts during capability selection rather than treating them as a downstream engineering activity.

A capability requiring minimal recertification effort may provide significantly greater value to the Commonwealth than a technically comparable solution requiring extensive reassessment and re-approval.

5.8 Fleet Commonality and Standardisation

Fleet commonality should be considered as part of any capability acquisition strategy.

Introducing multiple ECM configurations (inclusive of platforms) across a fleet may increase training requirements, spare parts holdings, maintenance complexity, software management activities and configuration control burdens. While different operational requirements may occasionally justify multiple solutions, unnecessary variation can increase whole-of-life costs and reduce operational flexibility.

Procurement authorities should assess whether proposed solutions support broader fleet standardisation objectives and consider the sustainment benefits associated with maintaining common platform, hardware, software and support arrangements wherever practical.

Where capability growth is anticipated, consideration should also be given to future fleet expansion opportunities and the ability of the selected architecture to accommodate evolving requirements.

5.9 Key Fleet Integration Takeaways

Successful ECM procurement requires consideration of the entire platform and fleet architecture, not simply the electronic equipment being acquired. Existing VIKs, antenna systems, harnessing, certification artefacts and engineering knowledge often represent substantial Commonwealth investment and should be preserved wherever operationally appropriate. Procurement decisions should carefully consider integration risk, SWaP constraints, EMC, certification burden and fleet commonality to ensure capability improvements do not inadvertently generate unnecessary cost, schedule delay or sustainment complexity.

Organisations evaluating ECM capability within the context of the broader fleet architecture are better positioned to deliver VFM, reduce implementation risk and maximise the return on previous Commonwealth investments.

6 Sustainment and Whole-of-Life Considerations

6.1 Looking Beyond Acquisition

A common procurement mistake is to focus predominantly on acquisition cost and initial capability delivery while giving insufficient consideration to sustainment requirements across the capability lifecycle. Effective procurement planning should include consideration of both a defined End-of-Life strategy and a programmed Mid-Life Upgrade pathway to ensure the capability remains operationally relevant and supportable throughout its service life.

While acquisition decisions are often influenced by perceived capability performance, the majority of costs, risks and support challenges associated with an ECM capability are typically realised after the system enters service. Unlike many conventional vehicle systems, ECM effectiveness depends upon the ongoing management of platform, hardware, software, mission data, technical knowledge, support arrangements and

configuration control. Failure to adequately address these factors during procurement can result in higher through-life costs, reduced operational effectiveness, loss of sovereign technical knowledge and increasing dependence upon external support providers.

Accordingly, procurement authorities should evaluate not only the capability being acquired today, but also the resources, skills and arrangements required to sustain the capability throughout its anticipated service life.

6.2 Training and Workforce Considerations

The effectiveness of an ECM capability is influenced not only by the technology employed but also by the personnel responsible for operating, maintaining and supporting the system. Procurement decisions should therefore consider the training and maintenance burdens associated with introducing a new capability and the extent to which specialist skills will be required across the operator, maintainer and support communities.

Consideration should be given to the availability of training packages, ongoing training support, qualification requirements, training system updates and the ability to maintain workforce competency as personnel rotate through positions.

6.3 Mission Data Support

Unlike many traditional vehicle systems, ECM effectiveness is heavily dependent on the continued relevance and accuracy of mission data. As threats adapt and evolve, the information used by the system to identify and counter those threats must also evolve. A capability performing effectively today may become less effective if mission data is not regularly reviewed, updated and validated.

Procurement authorities should therefore understand how mission data will be developed, maintained, distributed and assured throughout the capability lifecycle. This includes consideration of threat assessment update processes, approval authorities, support arrangements and the resources required to maintain operational relevance.

Consideration should be given to whether mission data support can be conducted within Australia. The responsiveness of update processes, and the extent to which the Commonwealth retains control over capability evolution are important factors to consider. Foreign Military Sales (FMS) procurements can constrain program flexibility and responsiveness due to the need to align with the priorities, schedules and configuration management processes of larger United States programs.

While some Commonwealth organisations successfully accessed ECM capabilities through FMS arrangements during operations in Iraq and Afghanistan, Australian operational requirements did not always align with those of United States forces. Even when operating as a coalition partner, threat environments, mission profiles and areas of operation may differ significantly. Consequently, reliance on foreign sources for mission data generation and distribution may not always deliver the responsiveness or operational relevance required to support Australian-specific requirements.

6.4 Configuration Management

Effective configuration management is essential to preserving capability performance and assurance throughout the lifecycle. Changes to platform, hardware, software, firmware or mission data may alter system behaviour, affect compatibility with other installed equipment, or introduce unintended consequences if not appropriately assessed.

Procurement decisions should consider how configuration changes will be controlled, documented and approved, and what processes exist to ensure systems remain aligned with their certified baseline. This is

particularly important in fleet environments where multiple platforms, software versions or mission data configurations may exist simultaneously.

Strong configuration management practices provide confidence in the consistency between the capability operating in the field and the capability originally tested, validated and approved for service. Conversely, poor configuration management can result in degraded performance, safety risks, interoperability issues and the erosion of assurance evidence relied upon by certification authorities and delegates. Where configuration changes are not adequately controlled, organisations may expose themselves to increased operational, legal and governance risk.

6.5 Obsolescence and Capability Evolution

Electronic systems inevitably experience component obsolescence during their service life. In many cases, the operational requirement remains valid long after individual electronic components have become unavailable or unsupported.

Procurement authorities should therefore consider the vendor's approach to technology refresh, component replacement and ongoing product support. The ability to upgrade or replace selected components without requiring complete system redesign may significantly reduce long-term ownership costs and minimise disruption to the fleet.

Consideration should also be given to the anticipated pace of threat evolution and the ability of the selected capability to adapt to future operational requirements without extensive redevelopment activities.

6.6 Dependence on Original Equipment Manufacturers

Many ECM capabilities incorporate proprietary technologies, software and specialist knowledge potentially remaining controlled by the Original Equipment Manufacturer (OEM). While OEM support can be an important element of sustainment, excessive dependence may introduce operational, commercial and sovereign risk.

Procurement authorities should understand which activities can be undertaken independently and which activities remain dependent upon vendor support. Particular consideration should be given to the ongoing availability of technical assistance, software modifications, mission data support, repair services and future upgrades.

A capability appearing attractive at acquisition may prove costly or difficult to sustain if critical knowledge, tools or authority remain exclusively controlled by an external organisation.

6.7 Technical Data and Intellectual Property

The level of technical information provided as part of a procurement can have a significant influence on future sustainment flexibility. Access to technical documentation, interface information, maintenance instructions and supporting engineering artefacts may determine the extent to which the Commonwealth can independently manage, modify or support the capability throughout its lifecycle.

Procurement authorities should therefore consider what technical data is required to support future sustainment activities and whether the associated intellectual property arrangements align with long-term capability objectives. Insufficient access to technical information may increase support costs, reduce competition and limit the Commonwealth's ability to respond to evolving operational requirements.

6.8 Sovereign Support Considerations

As Australia continues to operate within an increasingly complex and dynamic strategic environment, consideration should be given to the extent to which sustainment activities can be performed domestically. Sovereign support arrangements may improve responsiveness, reduce reliance on international supply chains and provide greater assurance of maintaining critical capability during periods of heightened operational demand.

Consideration should be given to the availability of Australian industry support, local repair capabilities, access to technical expertise, mission data management arrangements and the resilience of supply chains supporting the capability. While sovereign support may not always be achievable for every aspect of a system, understanding these dependencies assists decision makers in assessing long-term sustainment risk.

6.9 The Value of Existing Fleet Knowledge

Significant value often exists within organisations having previously integrated, supported and sustained an existing or previous ECM capability. Installation experience, certification knowledge, configuration history, lessons learned, support procedures and operational insights represent an accumulation of knowledge developed over many years of service.

Procurement decisions resulting in the loss of this knowledge may unintentionally increase transition risk, extend implementation schedules and generate additional engineering effort. Consideration should therefore be given to how existing knowledge can be retained, transferred or leveraged when introducing new capability.

The value of incumbent knowledge extends beyond a particular product and may provide important insights into fleet architecture, platform constraints, certification assumptions and sustainment requirements not readily captured within technical documentation alone.

6.10 Long-Term Cost Considerations

Acquisition price represents only one component of the total cost of ownership. Training, mission data support, software updates, repairs, spares, certification activities, engineering support, technical data management, obsolescence remediation and future upgrades may collectively exceed the original acquisition cost of the hardware over the life of the capability.

Procurement authorities should therefore consider whole-of-life cost when comparing options, recognising apparently lower-cost solutions may introduce higher sustainment costs, greater support complexity or increased dependence on external providers. Conversely, a capability with a higher acquisition cost may represent superior Value For Money if it reduces long-term support requirements, preserves existing Commonwealth investment or simplifies fleet sustainment arrangements.

6.11 Key Sustainment Takeaways

Successful ECM procurement extends well beyond capability acquisition. Sustained operational effectiveness depends upon the availability of trained personnel, effective mission data support, disciplined configuration management, proactive obsolescence planning, access to technical knowledge and resilient support arrangements. Procurement authorities should assess sustainment considerations alongside capability performance to ensure the selected solution remains supportable, adaptable and cost-effective throughout its service life. Organisations properly accounting for whole-of-life considerations are better positioned to maintain capability effectiveness, minimise operational risk and maximise value from Commonwealth investment.

7 Conclusion

The procurement of ECM capability requires consideration of a broader range of factors than those typically associated with conventional equipment acquisitions. While technical performance remains important, successful capability outcomes are equally dependent upon a clear understanding of the operational requirement, objective evaluation of capability effectiveness, careful management of integration and certification activities, and the establishment of sustainment arrangements capable of supporting the capability throughout its service life.

As discussed in this guide, procurement decisions can be adversely affected when requirements are defined around a preferred product, when capabilities are assessed using simplified technical comparisons, when existing fleet architecture and Commonwealth investments are overlooked, or when sustainment considerations are treated as a secondary priority. These mistakes can lead to increased acquisition costs, integration delays, avoidable certification effort, reduced operational effectiveness and unnecessary whole-of-life expenditure.

Effective procurement begins with a thorough understanding of the threat, operating environment and desired operational effect. Capability options should then be assessed against their ability to deliver the required effect within the constraints of the intended platform, fleet and support system. Consideration should also be given to the value of existing Commonwealth investments, including integration infrastructure, certification evidence, technical knowledge and established sustainment arrangements.

This guide is not intended to prescribe specific solutions or replace specialist EW, engineering, operational or sustainment advice. Rather, it seeks to identify the key considerations informing decision-making and provide procurement personnel with a framework for asking the right questions at each stage of the acquisition lifecycle.

Ultimately, successful ECM procurement is achieved not through the selection of the system with the most impressive specifications, but through the selection of the capability best satisfying the operational requirement, integrating effectively into the intended fleet, remaining supportable throughout its service life, and delivering enduring VFM to the Commonwealth. Organisations adopting this approach will be better positioned to reduce procurement risk, preserve operational effectiveness and maximise the return on Commonwealth investment.