



**‘Evolving an Intellectual Edge’**

**Professional Military Education for the  
Australian Army**

## ‘Evolving an Intellectual Edge’ Professional Military Education for the Australian Army

*The Australian Army is to prepare land forces for war in order to defend Australia and its National Interests.*

Australian Army Mission<sup>1</sup>

### INTRODUCTION

The Australian Army faces an unpredictable future, perhaps more so than at any time since the turn of the Century. The rise of populism in the West, a resurgence in ‘great power’ frictions in Eastern Europe and the South China Seas, and changing norms in warfare all impact on the structures that underpin the ‘rules-based global order’ in which the DWP invests so heavily.<sup>2</sup> It is now widely agreed that the pace and convergence of change in warfare will only accelerate in the next two decades.<sup>3</sup>

While militaries are required to anticipate the future to guide force design, the confidence with which we can do this is in decline. Our span of foresight is increasingly shorter, faced with a convergence of a broad spectrum of threats, the speed of development and the advent of genuinely revolutionary technologies in the form of Artificial Intelligence (AI) and robotics.

### PART I:

#### Uncertainty, Adaptable Armies and the Changing Character of War

The Australian Army sits at a point of reflection following seventeen years of ongoing operations. Militaries who face a broad spectrum of threats can never hope to be ‘right’ in their predictions on force design and capabilities. It is far more important to be **adaptable** enough to change and respond, in reasonable time and at reasonable cost, to threats to their national interests. It is this adaptability that allows a nation’s fighting power<sup>4</sup> to be *relevant* across the spectrum of war. Five factors are at the heart of the Australian Army’s adaptability.

The first two factors are **training** and **education**. It is often overlooked that everything that is done outside of actual fighting falls into these categories. The two are not the same, and the distinction is important.<sup>5</sup> *Training* provides a suite of individual and collective military skills, from an accurate battle-shot through to Divisional manoeuvre. The conduct of such training is deep within the ‘DNA’ of the Australian Army; indeed it is one of the seven elements of culture described in Army’s capstone philosophical doctrine.<sup>6</sup>

However, training alone is insufficient. A comprehensive *education* in the theory of war provides the intellectual, conceptual and ethical foundations to practically apply these skills; to successfully adapt them to a given theatre in a given character of war. While definitions of ‘educate’ are myriad, the Australian Army is drawn to one from the Oxford English Dictionary: ‘to give intellectual, moral and social instruction’.<sup>7</sup> This speaks to the heart of what military education seeks to achieve.

The third factor is **doctrine**. This articulates how a force fights which provides the organisational heuristics to change ‘in contact’ and achieve tempo. Doctrine is both formal and informal and speaks to the culture of a force. Those who believe *written* doctrine is always *actual* doctrine would do well to remember Professor Richard Holmes, who wrote that ‘doctrine is not just what is taught, or what is published, but what is believed’.<sup>8</sup>

The next factor is **equipment**. For modern tactics to be even feasible certain core equipments (such as armour, artillery and intelligence-collection platforms) must be developed, and procurement cycles must be rapid enough to obtain materiel in a timely fashion.

The final factor is **experience**. Experience provides the practical knowledge by which military professionals rapidly adapt and apply trained skills, allowing the practical application of learned theory and the achievement of professional proficiency. It is experience that builds resilience against the inherent fog, fear, friction and stress of war, allowing us to weave together the other four factors under pressure. Experience is priceless and must be developed like any other commodity. When time and experience are unavailable, education provides an alternative.

The PME Strategy is about the balance between training, professional education and experience. These three factors feed each other a ‘theory-practice nexus’ that results in the ability to defeat an enemy. If Army is to be truly adaptable, it needs to maintain a coherent and balanced investment into these factors. While the current balance is reasonable, the changing character of war demands a sustained investment in **Professional Military Education (PME)** across the Army in order to evolve an *intellectual edge*. We define PME as ‘intellectual, moral and social instruction in the *profession of arms*’. A surge in PME will need to be deliberate in terms of an allocation of time and resources, and in the careful engineering of cultural change. The **PME Strategy** will articulate the methods, structures and metrics that should be used.

### Why does Army need an Intellectual Edge?

The Australian Defence Force’s (ADF) assessment of the most likely future battlefield is articulated in a document entitled the ‘Future Operating Environment 2035’ (FOE 2035)<sup>9</sup>, produced by the Vice Chief of the Defence Force Group. This unclassified work articulates an evidence-based assessment of the future, setting the context for how the ADF may need to fight. There are three fixed constraints held within FOE 2035 that drive the need for the investment in an *intellectual edge* within Army (as part of our single-service contribution to joint effect). We will briefly examine these in turn.

The first is Defence’s growing **demographic challenge**, particularly compared to regional neighbours. In short, Australia is limited to a small Defence Force. Australia currently has approximately 8.5 million citizens from which to draw its military.<sup>10</sup> Regionally this is a small number, particularly when compared against Australia’s other more populous neighbours.<sup>11</sup> Projected population growth in Australia is not expected to change this.<sup>12</sup> Even in a worst case scenario to Australian security that demanded societal mobilisation, the nation will only be able to field a comparatively small force.

The second is the **spread of technological parity**. Given its small military, Australia has relied on the maintenance of a ‘technological edge’ to maintain a relative advantage over regional and international threats. In the most recent White Paper, the Government expressed concern in the decline of Australia’s ‘leading edge’. This trend is projected to become starker in the future as sophisticated technology proliferates to state and non-state actors. As White Paper 2016 states, by 2035 ‘military modernisation in our region ... will mean the defence capability edge we have enjoyed in the wider region will significantly diminish’.<sup>13</sup> The decline, or even loss, of this edge has considerable implications.

The third is the **potential impact of emerging technologies on the fighting of wars**. In its section entitled ‘Warfighting in the Future Operating Environment’, the FOE paints a picture of a hyper-technological future battlespace. The advent of AI, ‘deep-learning’ systems and robotics are projected to have implications across the ADF Warfighting Functions. Adaptive and meshed networks, decentralised command and control, and a near-overwhelming ability to gather data all have fundamental implications for the generation and delivery of military capability. The rapid development of human-machine teaming and ‘novel’ weapon systems are likely to drastically challenge the way we currently fight, and how we develop and procure our equipment. Even if war itself is not becoming more complex, the way in which we may need to fight is.<sup>14</sup>

**The implications of these three trends for the way the ADF (and the Army) is designed are profound.** The Army faces a potential future of being a relatively small force, with a declining technological edge, fighting in a hyper-technical and lethal battlespace. In the worst scenarios, the Army is highly likely to be the ‘near-peer’ of our own traditional exercise constructs; facing an enemy more numerous than us and with the requirement to overcome relative technological inferiority. This is not a future we can change; the trends in FOE 2035 represent fixed constraints, outside of our control. With the decline of one ‘edge’, we must logically evolve another. This must be an *intellectual edge*, based around the development of a small but hyper-professional land force that can orientate, contextualise, plan, decide and successfully act faster than a changing environment or a superior enemy.

This *intellectual edge* can be achieved through an increased investment in professional education, cognition and multi-modal learning strategies. The *profession of arms*, like all true professions, is based around a theoretical body of knowledge developed progressively through hundreds of years of experiences.<sup>15</sup> This body of professional knowledge underpins both the science and art of successful military decision-making as staff and in the field.

If the Australian Army seeks to be truly adaptive in the face of adversity, it must enhance its ability to solve complex problems by deepening its individual and institutional learning of foundational doctrine and the theories of war that underpin the *profession of arms*. It must draw the full intellectual potential from its limited pool of people, engineering a force that is far more than the sum of its parts. It must develop true single-service ‘masters’ as a contribution to joint effect.

### **What PME Needs to Achieve**

The first stage in the design of a strategy is the establishment of a specific, measurable and achievable end for PME. This is Army’s narrative of what ‘victory’ looks like. PME is well established as a subset of Army’s Education, Training and Doctrine (ETD) system responsible for the ‘*prepare*’ element of Army’s mission. The desired output of Army’s overall ETD ‘system’ (being referred to as Army’s ‘Professional Development System’) was articulated in the 2016 Ryan Review.<sup>16</sup> **The Review placed mastery of the profession of arms in the land and joint environments as the overall outcome of the ETD ‘professional development triumvirate’.**

The establishment of *mastery of the profession of arms* sets a philosophical construct for all training and education of Army’s soldiers and officers. It reinforces that military service is a true profession, and acts as a ‘unifying purpose’. It is equally important that it is framed as being specific to Army’s primary role in the *land environment* but also reflects our responsibilities within the critical *interfaces* between the land, air and sea domains. This ensures that investment in ETD is directly linked to the achievement of Army’s mission as a contribution to current *and future* joint concepts and operations.

To understand PME’s role in pursuing *mastery of the profession of arms*, the concept of the *profession of arms* needs further explanation. The Ryan Review defines Army’s view of the *profession of arms* through the ‘seven pillars’ of the profession (below). These must not be viewed in isolation; the ‘art’ lies in the creative combination of all seven to prevail in chaotic situations:

- **Technical and Tactical Mastery.** The ability to apply and adapt institutional doctrine and tactics. This pillar includes the core capacity to teach and mentor others in the profession.
- **Physical Mastery.** The capacity to master the body, in terms of physical fitness, cognitive ability, and physical and emotional resilience against stress. At the heart of this is an understanding of the *physiology* of the body and mind.
- **Psychological and Cognitive Mastery.** The ability to leverage the cognitive aspects of war and warfare, and to use cultural understanding and agility, as well as psychology, to defeat an opponent. Both of these must be achievable under the influence of physical and emotional stress.

- **Mastery of Military History and Organisational Theory.** The capacity to leverage relevant military history to provide context, width and depth to decision-making, and to help harness the fighting power of the military institution. These are the professional's *heuristics* in war.
- **Mastery of Leadership and Ethics.** The ability to influence and motivate people to achieve individual, team or organisational goals making the whole more than the sum of its parts. This goes hand-in-hand with adherence to the ethics of modern political violence.
- **Mastery of Operational Art.** The capacity to comprehend Army's role in the combined, joint and inter-agency conduct of operations. Masters of the Operational Art are able to weave a contribution to the *land* environment in with the efforts of other services and agencies.
- **Mastery of Strategic Thinking.** The ability to link national policy and tactics together through the process of strategy. The outputs of this are *strategies* that may then be executed. While the focus of this pillar is found in the skill of *generalship*, strategic thinking plays a role at all levels.

**The end of Army's PME Strategy needs to establish the specific contribution of education to the development of *mastery* of these pillars.** *Mastery* is defined in the Macquarie Dictionary as 'expert skill or knowledge'.<sup>17</sup> For the Australian Army, the 'skill' element of this mastery is achieved through its training system. It is education that provides the complimentary 'expert knowledge' that enables people to successfully leverage trained skills. It is within this 'expert knowledge' of the seven pillars of the *profession of arms* that Army can target development of the *intellectual edge*. Taking all these definitions into account, the **end** of Army's PME Strategy is:

*Army is able to build and sustain an intellectual edge that enables it to succeed in preparing for and executing operations within a joint force in war.*

## PART II: A Strategy for Army's Professional Military Education

Having established the ends of PME, the strategy to achieve it must be iterative and flexible. It must be able to interact with a changing environment and a developing set of influences. The start point of strategic development has been to derive (within reason) order from uncertainty. A series of **assumptions** have been made, and a bounded **freedom of action** has been developed – both of which have been agreed by Army's senior leadership.<sup>18</sup> Working within these strategic boundaries, the broad ways and means have been framed to be used to achieve the ends and to direct who is responsible for the delivery of each facet.

**The 'Ways'.** For Army's PME Strategy, the ways are specific enough to have institutional power and influence, without being so proscriptive as to be inflexible in the face of an uncertain future. The seven proposed ways which will be used to achieve an *intellectual edge* are below. Those responsible for leading delivery are annotated in **bold**:

1. **Evolving Organisational Culture.** Army's PME Strategy seeks to evolve an organisational culture that better values, both implicitly and explicitly, intellectual excellence. Army will develop an institution that is admired (internally, regionally and globally) for its intellectual contribution to the development of future joint warfighting and to excellence in the *profession of arms*. The aim is for the Army to be renowned for its ability to contribute intelligently and precisely in a joint force to generate strategic effects. The image of the future Australian soldier must be constructed to have a careful balance between the 'warrior' and the 'scholar'. This culture must be broad and reach across all ranks; limiting the focus to officers in their role as 'managers of violence'<sup>19</sup> is unlikely to meet the demands of the future operating environment. **Evolving organisational culture will require a pan-Army effort. It will be led by the DCA and managed through the Army People Capability Steering Group (APCSG).**

2. **A Refocused Approach to the Study of the Australian Profession of Arms.** All complex professions (medical, legal, scientific) work through a body of knowledge, based around a set of ‘theories’. A ‘theory’ is defined as ‘a system of ideas intended to explain something’.<sup>20</sup> The *profession of arms* is no different. Thousands of years of warfare have developed an extensive collection of theories, related to the conduct of war, which form the foundations of knowledge around warfare. National character guides how a force prioritises these theories. Army’s PME Strategy will renew focus to this extensive collection of theories, carefully articulating those that are considered to be central to the seven pillars of mastery of the *Australian profession of arms*. It will provide ‘unity of purpose’ to Army’s educational investment, steering the organisation towards success in the Future Operating Environment. This focused approach will ensure the efficient use of one of Army’s most valuable commodities: time. **This will be delivered by DG TRADOC, supported by the Land Warfare Branch and the Australian Army Research Centre (AARC).**
  
3. **A ‘Whole of Enterprise’ PME Approach.** Recent operational experience suggests that the ‘specialists need to be more general and the generalists more interested in specialities ... we need an end to silos, or at least we need permeable walls’.<sup>21</sup> Where PME has traditionally focussed on the intellectual component of fighting power, Army’s Strategy will work to foster a broader body of expertise to underpin all three elements.<sup>22</sup> New, complex technical skills may be required (for example) to develop the concepts and doctrines for the age of AI; an intervention into the physical component with no historic precedence. The future procurement, management and operation of emerging technologies may require heightened digital literacy and project management skills, as well as a more considered focus on Science, Technology, Engineering and Maths (STEM) across Army. More officers and soldiers may be required to master the ‘business of Defence’. Outside of the technical, a deepened foundation of socio-cultural skills and emotional intelligence will be required. PME will focus on developing holistic fighting power not just a single component. **This will be delivered by DG TRADOC with support from HLC.**
  
4. **Continue to Reinforce the Value Proposition of PME.** To achieve an evolved culture, Army must provide give a new ‘value-proposition’ to the *intellectual edge*. Much of this will need to focus on individual motivation, from which cultural change and institutional capability is often borne. Army will use its career levers to motivate service-members to invest time and effort in intellectual development. Such an investment will need to garner career opportunity and success. Continuous reporting profiles will have an increased focus on intellectual capacity. Selection for employment within Army’s training and educational institutions will be vested with a higher profile. Ultimately an enhanced career development framework may be needed to allow Army to better understand and value the intellectual depth of the organisation. Army will need to assess and articulate the benefit of the *intellectual edge* to future warfighting, proving that such an investment will lead to a more effective fighting force. Education must be articulated as a means to a warfighting end, not an end in itself. **This will be led by DG TRADOC with ongoing advocacy from Army’s SLG.**
  
5. **A Continuous Learning Approach.** Having selected the focal points for Army’s educational investment and established the ‘value’ of intellect, the PME Strategy will shape Army’s approach to learning. Traditionally, much of Army’s education has rested on *formal education* through residential courses where students are taught a constructively-aligned series of learning outcomes. This approach to education is invaluable in terms of consistency, networking and focus, and will endure. The PME Strategy will broaden and deepen this formal education with a series of innovations in *semi-formal* and *informal* learning approaches. With a carefully gauged application of technology, it will create a networked approach to PME that allows Army to leverage the maximum return on investment from its available time, resources and expertise. The Strategy will support networks for informal self-directed study, platforms for unit-led development programs specific to corps and role, and formal residential courses delivered centrally by Army; all

underpinned with connections to Joint, Inter-Agency and ‘Multi-Domain’ arenas. The desired outcome is a system that inculcates a culture of continuous learning and insatiable curiosity about the profession. **This will be delivered by DG TRADOC with support requested from the ADC.**

6. **Comprehensive Accessibility.** Army needs to break down geographic, technical and cultural barriers to create a truly connected force where education is continuous and self-sustaining. As such, a system will be developed that is accessible to all members, regardless of role, rank or location. Educational investment will be broken out of its traditional comfort zone within the officer ranks. It will be leveraged judiciously across the force enhancing operational capability from Private to General. Regular and reserve soldiers will be given comparable access to resources, with no decline in standard of delivery or investment. Educational infrastructure will be developed to be truly global - with members able to learn residentially, independently or collaboratively, wherever they are. **This accessibility will be delivered by DG TRADOC with support requested from the ADC.**
7. **An Army – Joint – Academia Relationship.** Army’s continuous learning approach will be underpinned by a deepened relationship with the Australian Defence College and Australian academia. Australian universities and think tanks that specialise in defence and security matters remain regional (and increasingly global) leaders in the study of future war. They provide an invaluable, often critical, external eye to Defence, providing invaluable context to our analysis. Army’s PME Strategy aims to expand a longer-term, coherent approach to our relationships with Australian academic institutions – seeking their collaboration on developing Army’s *intellectual edge*. **This will be delivered by DG TRADOC supported by the Australian Army Research Centre and COMDT RMC-A.**

**The Means.** The means are the physical entities, structures and policies created to achieve the ends. There is a danger in being too proscriptive in terms of the means required: an overly specific view can rob the strategy of flexibility. As such, the five means proposed are articulated broadly and flexibly. They are (with those responsible for delivery annotated in **bold**):

1. **The Office of Director General Training and Doctrine (DG TRADOC).** Army’s PME Strategy requires a **strategist** for its execution. This will be found in the office of the DG TRADOC. Under the PME Strategy, this post fulfils two key functions for Army in support of achieving an *intellectual edge*. Firstly, it is responsible to the Chief of Army for managing the reciprocal relationship between the ends, ways and means of Army’s PME Strategy. Secondly, it works to weave the PME Strategy into Army’s (and Defence’s) other institutional efforts, including personnel, career management, business transformation and modernisation. **This office will be designed by CA and managed by COMD FORCOMD.**
2. **The Chief of Army’s Professional Development Priorities.** The ways section concludes that Army must take a refocussed approach to the *Australian profession of arms*. The principle means for achieving this will be the ‘Chief of Army’s Professional Development Priorities’. This list will provide a unifying purpose for Army development. It will specify the subjects that Army must study (individually and institutionally), covering the long-term and based on an assessment of the developing character of war. Supported by mission analysis at all levels, these priorities will ensure that Army makes the best use of time allocated to PME. They will act to guide the curriculums of Army’s major educational institutions, and will support formations and units in planning and conducting decentralised education. They will create the foundation for a ‘whole of enterprise’ approach. They will guide Army’s single-service intellectual contribution to developing curricula of ADF institutions. In all, these priorities will guide Army towards an intellectual vision that matches the character of future war. **This will be delivered by DG TRADOC, in conjunction with OCA and the AARC.**

3. **An Enhanced Professional Development Framework for Army.** Army's PME Strategy will be an element in the development of an enhanced professional development framework for Army, synchronised with joint PME outcomes. This framework will establish a set of professional standards that soldiers and officers must obtain. Such a framework will be supported by the Individual Training Campaign Plan, and the personnel and career management agencies in maximising the use of the Army's talent. This approach will maximise the potential of the individual. It will help set a baseline level to be attained prior to employment in certain ranks and roles. Additions to existing career pathways will allow motivated soldiers and officers to achieve recognised higher proficiencies, rewarded through enhanced promotion prospects or financial incentives. It will allow Army to talent manage of General Service Officers for technical or specialist pathways (such as STEM, project management or research). It will encourage the cultural change that elevates the worth of intellectual excellence in the eyes of the professional body. **This will be delivered by DG TRADOC and DGCMA.**
  
4. **Improved Unit-Level Educational Capacity.** Army's PME Strategy requires an improved unit and formation level capacity to deliver decentralised, continuous PME. Years of institutional investment means Army's units reflect LWD 1's training culture and are well-established to conduct Foundation War Fighting (FWF) training. This is reflected in highly developed instructors, access to training areas, provision of resources and funding. In comparison, the capacity of units to conduct decentralised PME is limited. Open-source digital infrastructure is insufficient to make the most of tech-enabled learning. If Army is to achieve an *intellectual edge*, this shortfall in 'grassroots' education capacity needs to be addressed through investment in manpower, instructor development and resources. Unit capacity to educate, as well as train, will be enhanced allowing (for example) elements of selected Learning Management Packages (LMPs) to be brought into the unit environment as 'short courses'. **This enhancement will be delivered by DG TRADOC supported by Army's formations and units.**
  
5. **The All Corps Officer and Soldier Development Continuum (ACOSDC).** Building on current structures, Army will develop an All Corps Officer and Soldier Development Continuum (ACOSDC). This will better align education with training and experience; challenging current orthodoxies, promoting formal and informal study, and bringing the 'seven pillars' to the heart of the All Corps *profession*. To deliver this Army will maintain the Royal Australian Army Education Corps (RAAEC): a cadre of professional military educators that will provide the theoretical underpinning to PME. These Specialist Service Officers will be Army's institutional cache of educational theory and will develop and deliver Army's *Continuous Learning Approach*. They will provide a distributed network of advisors to formation and unit commanders on the conduct of in-unit PME (a vital part of the *informal* element of Army's future learning), and to the Training Institution on the conduct of *formal* PME. **This will be delivered by COMDT RMC-A.**

### **PART III: Assessing the 'Intellectual Edge': Establishing Metrics**

The final element of the strategic design for PME is to develop metrics which will be used to gauge success and failure, support decision-making and articulate the 'Return on Investment' of the PME Strategy. The tasking of three organisations will be key: the Defence Science and Technology Group (DST Group); the AARC and the Centre for Army Lessons (CAL). Metrics for both success and failure will need to be established, allowing DG TRADOC to better manage strategic risk on behalf of the Chief of Army.



**Three Simple Metrics.** Effective metrics are simple metrics. The PME Strategy will use three simple, linked metrics to assess and adapt the delivery of the Strategy. These three metrics are briefly outlined below, with expansion at Annex A:

- **Metric 1: That the Means Exist.** Five means have been described in Part II. The framework of metrics will start by assessing whether these means are being built and, importantly, how sustainable they are. This might be done via the analysis of five factors: ‘Achievement of Milestones’, ‘Allocation of Resources’, ‘Clarity of Strategic Direction’, ‘Organisational Energy’ and ‘Interconnectedness’.
- **Metric 2: That The Means Are Engaging the Ways.** The five means outlined are designed to engage the ways of the PME Strategy. The second stage of the metrics framework will assess if this engagement is actually working. Means will need to be mapped to ways. Baselines and markers of success / failure will be established (a start-point of which is at Annex A).
- **Metric 3: That Together They Will Achieve the End.** The final stage of the metrics framework will assess the extent the means and ways are guiding Army towards the overall end of the ‘*intellectual edge Army needs to achieve its mission now and into the future*’. Central to this will be the narrative ‘theory of victory’ for the Strategy - an image of what the *intellectual edge* should look like at a given point in time. **Ultimately the core metric will be found in Army’s operational output, which should provide an increasingly more effective contribution to Australia’s military strategy.**

## Conclusion

The ADF’s ‘Future Operating Environment 2035’ is explicit that the character of war is gathering pace towards a period of significant change. Whatever the outcome, it is clear that Army must be **adaptable** if it is to meet the challenges of the future. It is clear that a demonstrable investment in PME is required. The desired output of this investment in PME is an *intellectual edge*. It is this edge that will allow the Army to adapt in the face of an unavoidable and unknowable future. To achieve this, Army will design, fund and deliver a coherent strategy for PME.

The Australian Army’s PME Strategy articulates a clear ‘end’ (a ‘theory of victory’), and reciprocal ‘ways’ and ‘means’ to achieve it. The end of Army’s PME Strategy is found in a meaningful contribution to the Ryan Review’s *mastery of the profession of arms in the land and joint environments*. This end is ‘*Army is able to build and sustain an intellectual edge that enables it to succeed in preparing for and executing operations within a joint force in war*’.

The introduction noted developing an *intellectual edge* will form the cornerstone of the Army’s future success. The PME Strategy provides the ways and means through which Army will build and sustain this *intellectual edge* as a single-service contribution to joint success. In possible future environments where superiority through technology or mass alone is unlikely, the focus by Army on developing the *intellectual edge* is one of our highest priorities.

## Annex:

A. Building a Framework for Metrics.

## Annex A - Building a Framework for Metrics

The delivery of Army's PME Strategy will require a framework of metrics which will be used to gauge success and failure, support decision-making, and articulate the 'Return on Investment' of the Strategy. A project in itself, the outline framework for metrics is described in Part III of the main document. The table below seeks to expand that outline framework, proposing indicative metrics of success and failure.

	<b>Q1: Do the Means Exist?</b>	<b>Q2: Are they Engaging the Ways?</b>	<b>Q3 Are they Achieving the End?</b>
Who	Director General Training and Doctrine	Defence Science and Technology Group	Army Headquarters
What	Army's PME Strategy proposes five physical means for the achievement of the end. The metrics framework will assess if these structures exist, and how sustainable they are.	Using the output of Q1, assess if the means are successfully engaging the seven ways of the strategy. This will involve baselining, measuring change, and mapping back to the means.	Using the outputs of Qs 1 and 2, assess to what extent the combination of the means and the ways are evolving the <i>intellectual edge</i> , and if this is supporting Army in its mission.
How	This assessment will be done against five metrics: 1. Achievement of Milestones. 2. Allocation of Resources. 3. Clarity of Strategic Direction. 4. Organisational Energy. 5. Interconnectedness.	A three stage process for each way: 1. Baseline the current status of each way prior to the application of the means. 2. Using quantitative and qualitative data, measure demonstrable change in each way. 3. Casually map the means to the change.	This requires to be 'chunked' in time and based around a defined 'theory of victory'. AHQ would establish a marker in time (say '2022') and would then articulate core markers of an 'intellectual vision' of Army that the means and ways should produce. This is then assessed annually.
Example Metrics and Methods	To assess the 'CA's Professional Development Priorities', DG TRADOC would: - Track adherence to an implementation plan. - Assess whether the project is being developed with sufficient intellectual horsepower. - Test the clarity of strategic direction. - Subjectively assess the climate of the team. - Map the holistic use of networks in developing the 'Priorities', and their likely long-term utility.	To assess 'Evolving Organisational Culture', DST Group would: - Baseline the role and influence of PME in Australian Army culture at a set point. - Establish the type and timeline of observed change that would suggest success or failure. - Gather qualitative / quantitative evidence to measure cultural change as the Strategy evolves. - Casually map that change against each means.	For a marker of '2022', the core markers of an 'intellectual vision' for Army might include: - Army is broadly viewed as 'intellectually robust'. - Army's individual people are attaining higher intellectual standards (against AQFs). - Army's plans / narratives, from tactical to strategic, are more intellectually rigorous. - Holistically, these facets are quantifiably supporting Army in reducing risk against DROs.
Potential Tools	Project management tools, published orders and policies, subjective Comd assessments.	Test groups, existing ADF 'climate' surveys, statistical data on education, interviews.	Army and Joint analysis of the FoE for the 'vision'. Campaign Assessment Boards for assessment.
Output	Input to internal DG TRADOC battle-rhythm. Input to FORCOMD Campaign Assessments.	Establishment of a 'dashboard' to support DG TRADOC in delivery, annual report to CASAC.	This analysis should be weaved into AHQ's system of campaign and preparedness assessments.

## End Notes

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- <sup>1</sup> See Australian Army (Office of the Chief of Army) Minute, ‘*Army’s Mission Statement*’, OCA/OUT/2017/R27945849 of 4 May 17.
- <sup>2</sup> Commonwealth of Australia, *2016 Defence White Paper* (Canberra: Commonwealth of Australia 2016), p. 44 – 46.
- <sup>3</sup> For an excellent summary of this trend see US Army TRADOC ‘*The Operational Environment and the Changing Character of Future Warfare*’ (accessed 21 Aug 17).
- <sup>4</sup> ‘Fighting power’ is defined in Land Warfare Doctrine 1 as ‘the way in which Army generates its capacity through the integration of the physical, moral and intellectual components at both the individual and organisational levels’. See Australian Defence Force, *Land Warfare Doctrine 1: the Fundamentals of Land Power*, p. 48 - 52.
- <sup>5</sup> In his influential article ‘Professional Military Education and the ADF’ (p.28), Grey muses that ‘the best shorthand definition this author knows of the distinction between training and education posits that training prepares the individual to respond to a particular situation ... while education prepares them for unpredictable ones’.
- <sup>6</sup> Australian Defence Force, *Land Warfare Doctrine 1: the Fundamentals of Land Power*, p. 28 - 29.
- <sup>7</sup> Della Thompson (Ed), *The Concise Oxford Dictionary of Current English* (Oxford: Clarendon Press 1995), p. 431.
- <sup>8</sup> UK MoD, *Army Doctrine Publication: Army Doctrine Primer* (Shrivenham: UK MoD 2011).
- <sup>9</sup> Australian Defence Force, *Future Operating Environment 2035* (Canberra: Force Design Division 2016).
- <sup>10</sup> Central Intelligence Agency, *World Factbook - Australia*, found at [link](#) (accessed 3 May 17).
- <sup>11</sup> Central Intelligence Agency, *World Factbook - Indonesia*, found at [link](#) (accessed 3 May 17).
- <sup>12</sup> Ken Henry, ‘Australia’s Defence to 2045: The Macro-Economic Outlook’, *Defender*, 22(3), Spring 2005.
- <sup>13</sup> Commonwealth of Australia, *2016 Defence White Paper*, p. 49 – 50.
- <sup>14</sup> Australian Defence Force, *Future Operating Environment 2035*, Part 2, p. 21 – 28.
- <sup>15</sup> For more information on the current Australian Army view of the *profession of arms*, see the three-part series by Brigadier Mick Ryan, DG TRADOC, on the online journal *War on the Rocks* at [link](#) (accessed 3 May 17).
- <sup>16</sup> Australian Army, *The Ryan Review: a Study of Army’s Education, Training and Doctrine Needs for the Future* (Canberra: Commonwealth of Australia, 2016), p. 90.
- <sup>17</sup> Macquarie, *Macquarie Concise Dictionary Fifth Edition* (Sydney: Macquarie Dictionary Publishers Pty Ltd 2009), p. 768.
- <sup>18</sup> For brevity, these assumptions and the agreed scope of freedom of action are not presented here. They are contained in a separate paper and are available on request from HQ FORCOMD.
- <sup>19</sup> Samuel O. Huntington, *The Soldier and the State*, (Cambridge: Belknap Press 1957).
- <sup>20</sup> Macquarie, *Macquarie Concise Dictionary Fifth Edition*, p. 1310.
- <sup>21</sup> LTGEN Gary Volesky and MAJGEN Roger Noble, “*Theater Land Operations: Relevant Observations and Lessons from the Combined Land Force Experience in Iraq*”, *Military Review: The Professional Journal of the U.S. Army*, Online Exclusive June 2017, Army University Press, 22 June 2017.
- <sup>22</sup> Australian Defence Force, *Land Warfare Doctrine 1: the Fundamentals of Land Power*, p. 48 - 52.