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**Cognitive Readiness and Intellectual  
Leadership for Effective Maritime Advantage:  
The Naval Postgraduate School Vision &  
Strategic Framework**

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# COGNITIVE READINESS & INTELLECTUAL LEADERSHIP

FOR DECISIVE MARITIME ADVANTAGE



THE NAVAL POSTGRADUATE SCHOOL  
**VISION & STRATEGIC FRAMEWORK**



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*U.S. Naval Postgraduate School, Annapolis, Maryland, 1931*



## FOREWORD

The Naval Postgraduate School prepares defense leaders with the intellectual capabilities to meet operational and strategic challenges in a dynamic and complex security environment. As part of the Naval Education Enterprise (NEE), NPS provides defense-focused, naval-unique graduate and advanced education and conducts defense-relevant research that contributes to problem-solving and increased capabilities across the naval services. Expert faculty, experienced in defense and security-related issues, develop and enhance the *cognitive readiness* of our operationally experienced warrior-scholar students through interdisciplinary graduate education and *fundamental* research in support of advanced knowledge and skills.<sup>1</sup> Cognitive readiness is the critical ability to adapt interactively to an unpredictable, complex, and dynamic environment.

*“NPS is the United States Navy’s institution of higher learning ... We are warrior scholars and the scholar piece is honed here; there’s just not a finer institution in the world.”*

Vice Adm. DeWolfe Miller, Former Commander, Naval Air Forces, 2019

However, our nation’s strategic guidance is clear: we must do more. In addition to developing warfighters with leadership skills, initiative, applied problem solving, and innovative strategic thinking at every level, NPS must leverage the intellectual dynamism of expert faculty and the creativity of warrior-scholars to innovate the latest capabilities and solutions for the Navy and Marine Corps.<sup>2</sup> These problem-focused and threat-informed solutions strengthen the Nation’s defense by maintaining strategic advantage against competitors and global adversaries.

Our defense-focused education is aligned with our nation’s strategic priorities—science, technology, engineering, and mathematics (STEM), analysis and analytics, emerging technology and future capabilities, the management of resources, and the strengthening of allies and partners in strategic competition. As part of the Naval Research & Development Establishment (NR&DE), our research complements and contributes to the efforts of federal and Department of Defense laboratories and the Department of the Navy’s warfare centers to translate research into technologies and effective operational systems that improve warfighting capabilities. NPS education develops leaders with the intellectual competencies to think critically and deliver warfighting decision advantage in competition and conflict against 21<sup>st</sup>-century peer adversaries—this is *intellectual leadership*.

This Strategic Framework builds upon our NPS Next transformation effort and provides us with a shared vector for the future which combines our graduate education, research and innovation to generate cognitive readiness and intellectual leadership for the future force.

*“Delivering emerging capabilities at speed and scale requires every member of our Navy team, including our industry, academic, and research partners, to embrace the urgency of the moment: our maritime supremacy is being challenged.”*

Adm. Michael Gilday, Chief of Naval Operations, 2021

<sup>1</sup> Fundamental research is basic (6.1) and applied (6.2) research that contributes to subsequent research, advanced developments in defense-related technologies, and new and improved military functional capabilities.

<sup>2</sup> Capabilities may be material or non-material solutions to an operational or strategic problem that span joint or service Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities-Policy (DOTMLPP-P)



# MESSAGE FROM THE PRESIDENT



We are in long-term strategic competition, and U.S. maritime dominance is at risk. The Naval Postgraduate School is also in a state of strategic competition. In an era of increasing resource pressure, we must respond by advancing our education and research to ensure operational and strategic relevance. We are at a strategic inflection point—one that demands we renew our commitment to expand the intellectual ability of naval leaders, develop relevant naval capabilities and innovative solutions to complex warfighting challenges, and strengthen our institution to enable these critical outcomes.

The Chief of Naval Operations' Navigation Plan 2022 calls for the Navy to adapt, learn, and improve faster than our competitors. The core of "Get Real, Get Better" is the ability to assess, correct, and innovate to strengthen a culture of excellence and accelerate warfighting advantage in this critical decade. As the De-

partment of the Navy's primary graduate institution focused on science and technology, innovation, defense management, and strategic competition, NPS must exemplify a learning culture to remain at the leading edge to develop ready warfighters and relevant warfighting solutions at the speed of need. Grounded in "Get Real, Get Better" principles, our transformation journey continues apace.

NPS Next's transformation lines of effort focused on near-term objectives and achieved the critical change needed to position today. The transparency and collaboration through transformation brilliantly set the foundation for a strategic framework that will serve as our "North Star" and lead us to the future. This Strategic Framework for NPS transitions us from lines of effort to portfolios of plans aligned to our institution's enduring strategic priorities—**education, research, innovation, and institution**. We will empower and harness the potential of each member of the NPS team to achieve the objectives and goals supporting each strategic priority.

Our Navy and Marine Corps warfighting posture depends on the intellectual capacity and capability of our warriors and warfighting enablers to achieve decision advantage in competition and conflict. We must continue to position NPS as a place where cognitive readiness is enhanced by developing the knowledge, skills, and competencies of our warrior-scholars so they may understand and decisively employ emerging technological solutions in order to prevail in conflict. This is an enduring naval requirement and a national security imperative; NPS is a critical naval capability enabling decisive maritime dominance.

Together, NPS delivers immediate impact, future advantage, and enduring leadership.

A. E. RONDEAU,  
Vice Admiral, U.S. Navy (retired)

# PART I: THE IMPERATIVE

Our nation is engaged in a long-term strategic competition that threatens our security and way of life. China and Russia challenge our advantage by aggressively building military power, adapting existing technology for military purposes, and developing military capability from emerging technology. The National Security Strategy and Tri-Service Maritime Strategy set a clear strategic direction for our Navy and Marine Corps as part of the Joint Force to preserve peace and prepare for contingency, crisis, and conflict by operating forward alongside our allies and partners, providing stability, deterring aggression, and preserving freedom of the seas. Achieving overmatch in a technologically dense conflict against near-peer competitors demands a dominant naval force that can outthink and outfight the adversary.

## OUR MISSION

To provide defense-focused graduate education, including classified studies and interdisciplinary research, to advance the operational effectiveness, technological leadership, and warfighting advantage of the Naval service.

To compete and prevail against 21<sup>st</sup>-century peer adversaries, the Navy's education enterprise curriculum and research must deliver warfighting advantage—education and research must focus on warfighting concepts and capabilities our fleet needs to compete and win. Our Sailors, Marines, and the civilians who enable them are the true source of our naval power. To ensure they remain the best-educated force in the world, we must accelerate our evolution to match the pace of technological change and develop their cognitive readiness for decisive warfighting advantage.

*“Globally integrated and all-domain operations present challenges for tomorrow’s warfighters that our educational system must adapt to today. Being cognitively prepared to conduct these operations necessitates an adjustment in how we educate tomorrow’s warfighter.”*

“Developing Today’s Joint Officers for Tomorrow’s Ways of War”, May 2020

The U.S. Navy and Marine Corps team, as part of the Joint Force, must deter challengers, and when required, defeat adversaries in combat. Achieving those outcomes depends on the ability to command and control forces, ensure freedom of maneuver, and effectively achieve warfighting effects. The continuous adoption of disruptive technologies rapidly evolves the character of warfare. This dynamism compels a force design that perpetuates our warfighting edge, accelerates capabilities innovation, and sustains tactical, operational, and strategic adaptation in—and beyond—this decade. Total Force Design extends beyond platforms and systems to holistically encompass how we (1) develop the force’s ability to think, lead, and win in an age of cognitive warfare, (2) how we generate the force, and (3) how we employ the force in increasingly uncertain operating environments. Importantly, victory in the last begins with success in the first. Simply stated, the ability to accelerate warfighting capability and the intellectual competence to adapt in competition or conflict requires urgency and a new approach to developing and delivering warfighting advantage.





## PART II: OUR DESTINATION

As the world's preeminent naval force, we must meet today's operational demands and continuously prepare for future warfighting challenges. Our ability to compete with, and capability to prevail against, 21<sup>st</sup>-century peer adversaries is a national security imperative. Strengthening our nation's maritime dominance requires us to rapidly field the concepts and capabilities that create a warfighting advantage against the pacing threat and sustain our capabilities and capacities to generate integrated, all-domain naval power. However, our Sailors, Marines, and Department of the Navy (DON) civilians are our nation's competitive advantage over our strategic competitors. To that end, the naval service must continuously improve warfighter development through a career continuum of learning with relevant education and skills enhancement.

### OUR VISION

The Naval Postgraduate School will become the nation's leading institution for defense higher education and applied research, delivering transformative solutions and innovative leaders for decisive U.S. seapower and national defense.

NPS uniquely serves the NEE as the place fusing defense-focused education, research, and innovation. The purpose of NPS is to educate and conduct defense-relevant research, innovatively solving problems and increasing capabilities across the naval services. NPS serves Navy and Marine Corps warfighting development by preparing leaders who possess advanced knowledge in specialized and professional practices and can solve complex military and national security challenges through independent, critical, and strategic thinking. NPS leverages modern technology focused on advanced and graduate education requirements and robust partnerships to create a competency-based interdisciplinary approach that is grounded in project-focused experiential learning. Today, transformation at NPS is focused on four core dimensions:

- 1) Expanding the reach and increasing the impact of naval education.
- 2) Strengthening the alignment and impact of applied research.
- 3) Leading a naval innovation ecosystem with industry and academic partners.
- 4) Advancing the institution to support our vital mission.

The reemergence of long-term strategic competition, rapid dispersion of technologies, and new concepts of warfare and competition that span the entire spectrum of conflict requires a more capable, resilient, and rapidly innovating Navy, Marine Corps, and Joint Force, together with a robust constellation of allies and partners, to assure warfighting advantage. We must prepare our warfighters and the civilian workforce with intellectual leadership and military professionalism in the art and science of warfare to integrate new capabilities, adapt warfighting approaches, and change business practices to achieve mission success.

This demands an outcomes-based approach achieved through the Navy's *competency-based framework* to education that emphasizes ingenuity, intellectual application, and military professionalism in the art and science of warfighting while deepening technical expertise in specialized skills and competencies.<sup>3</sup> NPS must keep pace as warfare, geopolitics, technology, and instructional methods will continue to change. With an absolute focus on outcomes, we must improve naval warfighting advantage. This guides our strategic priorities of **education, research, innovation, and institution.**



<sup>3</sup> The Navy's competency-based framework identifies 13 individual competencies that develop problem solving, risk management, leadership, operational competence, and technical competence in support of mission command.

## EDUCATION

Extend reach and increase the focus of defense-unique and naval-relevant education

## RESEARCH

Increase the impact of applied research that is fully informed and directly contributes to warfighting solutions

## INNOVATION

Lead naval innovation via a collaborative ecosystem connecting warrior-scholars with academia and industry

## INSTITUTION

Enabled by a learning organization with a shared mission-focused culture developing defense leaders in modern and technologically relevant facilities.

NPS will expand the reach and increase the impact of interdisciplinary defense-focused, naval-unique graduate education. We will develop and deliver customizable and responsive education programs aligned with warfighting areas and flexible delivery to the career timing needs of the naval force, joint services, and international partners. We must expand the reach and access by enhancing the institutional ability to provide programs flexible to the career paths of naval leaders at the pace of operational relevance to the fleet and Fleet Marine Force.

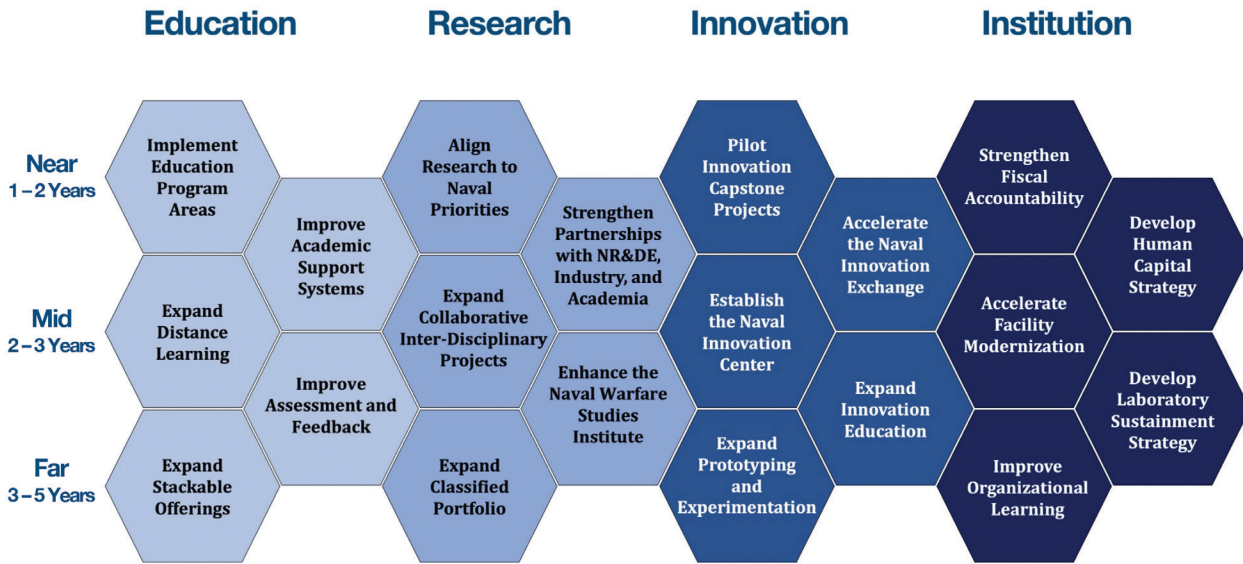
In addition, NPS must develop an outcome-focused direct and reimbursable research portfolio of distinctive defense academic scholarship that is aligned with Naval Science and Technology (S&T) and the Department of Defense's critical technology priorities and contributes to addressing key operational problems. We will accelerate our efforts toward fleet endurance and resilience required to prevail in a high-end maritime conflict of any scope and duration, by ensuring the necessary capability and capacity to *refuel, rearm, resupply, repair, and revive*. We must also expand our role as a defense innovation hub in the NR&DE and increase prototyping and experimentation to leverage NPS' proximity to Silicon Valley and inherent value proposition with latent potential as an accelerator of emerging technology applications to solve unique maritime and defense capability needs.

People are the heart of innovation. NPS is uniquely positioned as the Department of the Navy's scalable STEM-oriented innovation-capable institution to serve as the hub of an ecosystem with leaders from commercial industry focused on solving problems and developing today's and tomorrow's warrior-scholars. At the center of a growing ecosystem of Federally Funded Research and Development Centers (FFRDCs), University-Affiliated Research Center Laboratories (UARC), nationally recognized academic institutions, service war colleges, globally positioned industry partners, DOD and national labs, Naval Warfare Centers, and Warfare Development Centers, NPS provides exceptional experiential learning in support of warfighter development and strengthens the Naval Research & Development Establishment (NR&DE). Thousands of mid-career naval officers studying alongside joint service partners and civilians are NPS' comparative advantage over other academic institutions, warfare centers, and applied research labs. Collectively, they can focus, enhance and accelerate research and development projects in the NR&DE pipeline with critical insights rooted in their unique fleet/force experience. When fully realized, NPS is a naval innovation center of gravity connecting and integrating academia, industry, and DOD research enterprise at a purpose-driven campus driving collaboration, innovation, discovery, rapid prototyping, and experimentation focused on warfighting and deterrence.

NPS must empower and develop the talent of each member to achieve their full potential through effective, robust talent development and a leadership culture that attracts and retains a diverse world-class workforce. Modern defense missions demand a 21<sup>st</sup>-century state-of-the-art defense graduate campus to enable advanced education and research supported by an agile administrative organization. We will plan, install, and sustain modern facilities and an efficient and more effective organizational design. Additionally, NPS will ensure auditable fiscal processes and feedback loops that enable ongoing program improvements, and data-driven investment decisions to increase NPS impact and comparative advantage.



# STRATEGIC FRAMEWORK OBJECTIVES



## INITIAL ACTIONS

**Advance Curricula Reform.** Continue transition to defense-focused, naval-relevant education program areas consolidating and aligning in-resident curricula, certificates, and short course offerings; extend the NPS campus through strategic leadership of distance learning and pilot hybrid instruction in a fleet concentration area; improve institutional assessment of academic programs, including the integration of alumni feedback to focus improvements increasing program effectiveness; pilot stackable certificates for flexible distance learning programs that facilitate continuous warfighter development and career-long learning.

**Advance Relevant Research.** Accelerate implementation of the Office of Research and Innovation; establish institutional support framework to enhance capabilities supporting institution priorities; initiate and foster formalized organization-to-organization relationships across the Naval Research and Development Establishment; cultivate cross-department projects supporting identified naval priorities; develop processes that facilitate talent alignment to projects; sustain Naval Warfare Studies Institute (NWSI) support to naval priorities (as principal liaison to naval operational commands, NWSI aligns and integrates education and research in support of warfighter and war fighting unit current and future capability needs); expand the classified research and analysis portfolio; identify capability and capacity requirements to conduct applied research at all classification levels.

**Foster a Culture of Innovation.** Expand education of innovation process and practice across program areas; pilot innovation capstone projects enabling DOD’s efforts to ensure that relevant solutions, valuable technology, and associated capabilities are fielded more quickly; enable the Naval Innovation Exchange Teams and collaborate with external stakeholders ensuring projects are aligned to current and future programs supporting the CNO’s Navigation Plan and Commandant’s Force Design 2030 priorities; <sup>4</sup> facilitate development of concepts, rapid prototypes, and field experimentation to accelerate the integration of emerging technologies into defense applications.

<sup>4</sup> The Naval Innovation Exchange (NIX) Teams are student-faculty-industry teams connecting, creating, and accelerating naval innovation from idea to adoption.

**Invest in People.** Develop an inclusive whole-of-institution civilian talent acquisition and development strategy; align recruitment, advancement, compensation, and incentives to enable institution strategic objectives; accelerate implementation of an immersion program for new faculty and staff to enhance a shared understanding the Navy and Marine Corps organization, strategic role in national security, and operational missions, functions, and priorities; expand opportunities for direct faculty engagement with the fleet, Fleet Marine Force, systems commands, and Program Executive Offices.

**Strengthen Fiscal Accountability.** Continue responsible financial planning and resource management across the institution; refine institutional processes to develop an annual Program Objective Memorandum (POM) submission describing funding requirements to support the Department of the Navy's graduate education needs; support the Naval Education Enterprise's Planning, Programming, Budgeting, and Execution (PPBE) process through transparency and a comprehensive requirements program enabling the NPS mission.

**Modernize NPS Facilities.** Continue academic and laboratory facility modernization; expand classified education and research capability and capacity; advance planning, design, and analysis for the Naval Innovation Center, an interdisciplinary, state-of-the-art Navy and Marine Corps resource tailored for technology innovation and experimentation in support of current and emerging capability requirements; develop a strategy to recapitalize research capabilities that support institutional priorities; prioritize future facility investment to achieve improved outcomes.

**Improve Organizational Responsiveness.** Integrate the Navy's "Get Real, Get Better" approaches to assess, understand, and improve organizational performance; collect and analyze institutional data to assess performance against key metrics; leverage organizational learning approaches as a key enabler for continuous improvement; accelerate automation of business tasks to streamline processes and reduce barriers to execution.

## DESIRED OUTCOMES

*Achieving our strategic objectives will generate the following future state:*

**Education.** NPS is sought-after for advanced interdisciplinary education and alumni that can solve highly complex fleet problems. Demonstrating a mastery of technical, naval-relevant subjects, graduates return to the fleet and Fleet Marine Force with improved critical thinking and problem-solving skills and engage in continuous career-long learning that supports excellence in primary warfighting duties. NPS is the Department of Defense's premier institution for education and research in science and technology, innovation, analysis and analytics, emerging technologies and future capabilities, and strategic competition.

**Research.** NPS is known for its responsive, high-impact research solutions. Basic and applied research at all classification level supports solving key operational problems. Hands-on, project-based education and applied research focus on threat-informed solutions and enhance educational outcomes. Enabled by the Naval Warfare Studies Institute (NWSI) as the front door to the NPS knowledge ecosystem, NPS research groups connect to relevant warfighting challenges in pursuit of outcomes supporting critical fleet needs at all levels of classification.

**Innovation.** NPS is synonymous with innovation. Leveraging the intellectual, operational, and entrepreneurial talent at NPS, the institution becomes a technology accelerator, incubator, and testbed for applications, concepts, and capabilities. Promising ideas are generated, analyzed, war-gamed, red-teamed, and matured through capstone projects in a classified environment. NPS is a convening place for experimentation, rapid prototyping, and collaboration with industry and NR&DE partners.



The Naval Innovation Center (NIC) at NPS is a center of innovation through applied research aligned to core educational program areas that accelerate technology and talent development at greater speed and scale. Connecting experiential learning, collaboration, and naval innovation, the NIC empowers students and enables warfighting development. With our partners, integrated teams advance research and discovery supporting naval engineering, combat systems, space technologies and operations, and battlespace environments. Teams will leverage GEMS (gaming, exercising, modeling, and simulation), advance decision science and decision-making, and apply cyber technologies and information operational architecture technologies to close clear gaps. Teams will explore warfighting applications of advanced materials, quantum science, operational energy, climate resiliency and sustainability. Teams will also advance human-systems integration, integrated autonomous systems, remote sensing, enabled by high-power computing, and artificial intelligence. These new capabilities enhance learning beyond academic principles and strengthen education, research, and innovation outcomes.

**Institution.** NPS’ mission success is enabled by people, processes, and places. Expert faculty and staff thrive and grow, impacting and inspiring the students by modeling the advantages of life-long learning and innovation. Non-traditional opportunities to earn tenure attract and retain bright young minds. Our culture enables the institution to be a model command and a “super-connector” linking academia, industry, and defense to develop ideas, solve problems and accelerate the capability of the Joint Force. NPS has a lean and effective organization able to support advanced defense education and research at the pace of technological change. A flatter, more responsive organizational design is more integrated, interdisciplinary, and interconnected. Streamlined core business processes increase productivity, enhance reporting and transparency to better account for cost and clearly connect actions to outcomes. Reinvigorated organizational assessment and learning processes produce scaled improvement throughout the institution. Bureaucratic drag is relentlessly targeted and eliminated.

## IMPLEMENTATION

This strategic framework represents a positive departure from previous strategic plans by providing focus and alignment while remaining agile in today’s dynamic environment. The framework centers on four strategic priority areas of **education, research, innovation, and institution** to ensure a comprehensive approach to advancing the institution while providing stability through enduring priorities.

A vision alone will not bring about change, nor will a single plan bring about the desired end state. Achieving the desired outcomes requires advocacy, engagement, and action from throughout the institution to succeed. Implementation is through a portfolio of iterative plans that enable accomplishment of the strategic objectives for each priority in the near (1-2 years), mid (2-3 years), and far (3-5 years) range. These portfolios of plans form a campaign and serve as the comprehensive approach for realizing the strategic vision. Central to this effort are accountable, empowered, and engaged leaders responsible for the portfolios of implementation planning and action aligned to each priority area. These leaders will work across traditional institutional boundaries to lead integrated stakeholder teams who connect strategic vision with collaborative solutions. Each strategic priority area will have a designated “lead champion” who is responsible for implementation plan development and associated measures of performance. We will prioritize and synchronize activities toward the objectives and goals to achieve the stated outcomes. These form the *ways* and *means* to achieve the *ends*.



## CONCLUSION

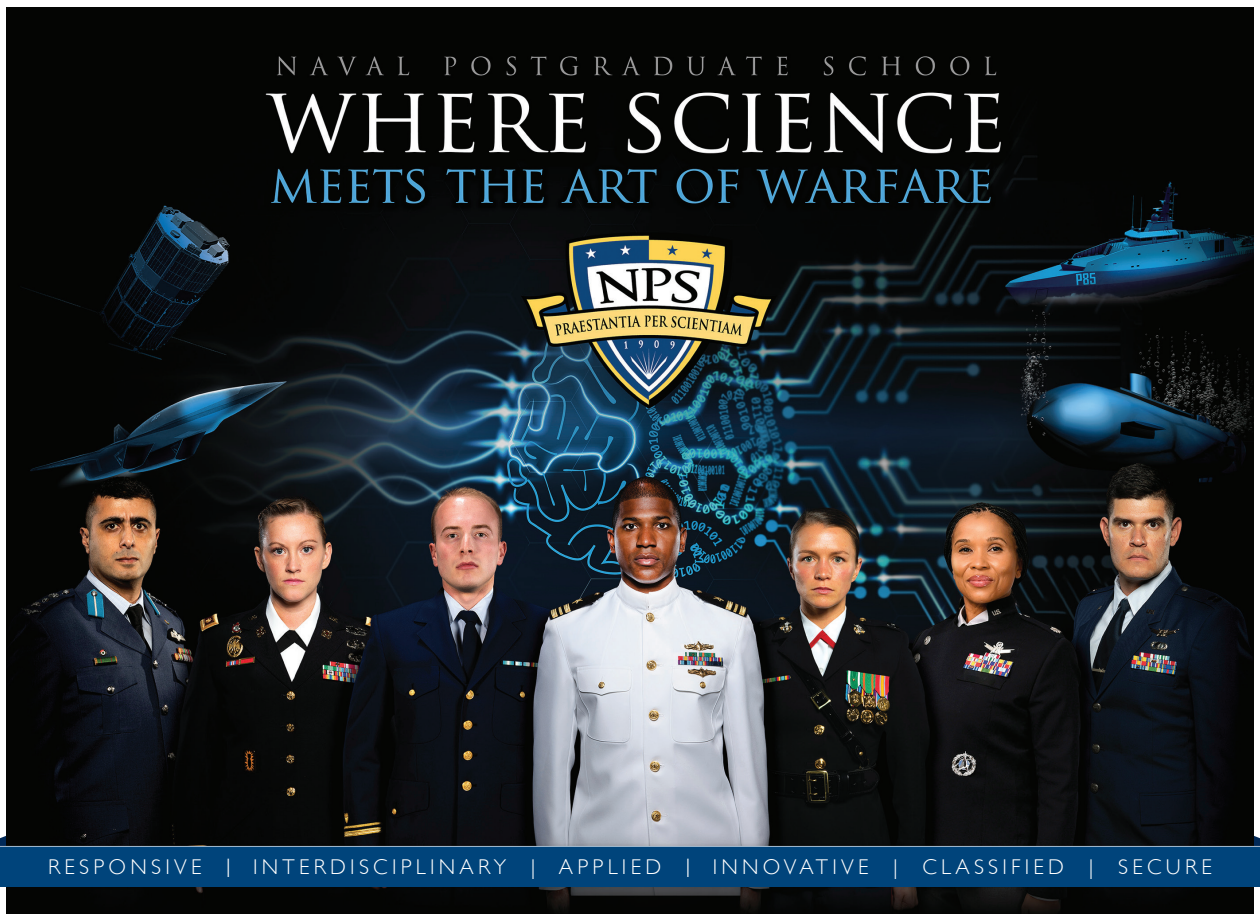
The desired end state is recognition of NPS as the nation’s leading institution for defense higher education and applied research. Decisive maritime advantage requires NPS to be an institution valued for delivering transformative solutions, and innovative, technologically competent leaders of character *cognitively ready* to outthink adversaries and command effectively in the U.S. Navy, Marine Corps, and Joint Force.

This is our decisive advantage—one that we maintain as the central connector in an expanded Navy/Marine problem-solving network focused on addressing our nation’s most pressing challenges. This network is grounded in a continuum of career-long learning—anytime, anywhere—which develops our service’s intellectual capital to meet the challenges of modern warfare through education that enhances operationally-based technical competency.

The NPS Strategic Framework will help ensure our edge and to propel us towards interdisciplinary education programs, flexible curricula, and delivery methods for career-long continuous learning with hands-on research. NPS partnerships with industry, our experimentation and prototyping, and our increased fleet integration of capabilities are a competitive advantage for our Navy, Marine Corps, and our nation. Students who graduate from NPS are battle-minded leaders who are prepared to command and lead forces capable of deterring America’s adversaries—and, if necessary, fighting and winning.

It is this spirit and determination which drives our vision of the future. We will move forward with a continued, unflinching focus on the NPS mission and vision execution.

NPS will always be “where science meets the art of warfare.”





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