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Implementing the DoN 30-Year R&D Plan: Creating and Sustaining a Culture That Values Learning, Strategic Agility, Collaboration and Innovation

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Implementing Department of Navy 30-Year Research and Development Plan: Creating and Sustaining a Culture that Values Learning, Strategic Agility, Collaboration and Innovation

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Implementing Department of Navy 30-Year Research and Development Plan: Creating and Sustaining a Culture that Values Learning, Strategic Agility, Collaboration and Innovation
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EXECUTIVE SUMMARY

Project Summary
In 2017, a 30-year Department of Navy (DoN) Research and Development (R&D) Plan addressed concerns among Navy leaders about increasing the technological advantage and maritime superiority of the fleet in a dynamic security environment. The plan was developed collaboratively by a multi-organization group, led by the Director of Strategy and Innovation, Deputy Assistant Secretary of the Navy (DASN) for Research, Development, Test and Evaluation (RDTE). That group, reframed as the RDTE Strategic Thinking Community of Interest (ST-COI), met in an interactive webinar/teleconference two to four times each month from 2017 to 2019. In that time, it grew from 25 to 250 members, and focused on "future horizon scanning" of 5-30 years. It considered emerging trends and technologies, while discussing how corresponding implications, risks, opportunities, and challenges might impact Naval capabilities. This effort resulted in an informational archive of over two gigabytes on the Department of Defense (DoD) collaboration platform, All Partners Access Network. This project observed and evaluated the ST-COI as a way to develop an acquisition workforce that values continuous learning beyond mandatory refresher training.

The following questions guided our work:
1. How might the Naval Research and Development Establishment (NR&DE) improve and accelerate the implementation of the DoN 30-Year Research and Development Plan?
2. How might NR&DE leaders develop a workforce and culture that values continuous learning to open minds and challenge paradigms, and collaboration, innovation and strategic thinking to promote organizational agility?

In addressing these questions, we built on previous research, participated in ST-COI webinars/teleconferences and collaborated on design, development and delivery of a multi-day workshop at the Naval Postgraduate School (NPS). We found that communities of interest and practice can serve as a valuable, continuous learning complement to formal education and training opportunities.

Keywords: *Naval Research and Development Establishment (NR&DE); agility; innovation; communities of interest (COIs)*

Background
The ST COI webinar/teleconference agendas included wide-ranging topics that provided a broad awareness of the strategic environment and the anticipated implications of emerging technologies for DoN capabilities. Topics included: agile methodology, augmented reality, autonomous systems, blockchain, cloud computing, cognitive warfare, cyber security, data analytics, digital currency, internet of things, machine learning, mobile computing, neuroscience, quantum computing, social media.

Additionally, global strategic issues and changes in society, work, economy, health, and learning were discussed.

Several articles and reports were also discussed in each session from sources such as: Harvard Business Review, Forbes, Nature, Science, The Economist, RAND, MITRE, National Science Board, World Economic Forum, McKinsey, Council on Foreign Relations, Center for Strategic and Studies, Naval Studies Board, House Armed Services Committee, Defense Advanced Research Projects Agency, Defense Innovation Board, United Nations, OPNAV N2/6, OPNAV N3/5, and vision, policy and strategy documents from Air Force, Army, Navy, Marine, DoD (e.g.: Education for Seapower, Design for Maritime Security, National Defense Strategy, National Security Strategy). Additionally, the findings of several in-person workshops hosted at NR&DE Warfare Centers were summarized and discussed (e.g.: Naval Warfare Systems Command Application Integration Workshop, NPS' Warfare Innovation Continuum, Acquisition Research Program, Naval Research Program, Naval War College program on warfighting technology integration).

In December 2018, the Navy released "Education for Seapower (E4S)" in which Under Secretary of the Navy Thomas Modley highlighted in a memorandum "Continuous learning—and sharing hard-won knowledge —represents a combat-proven key to victory for our naval services." However, the focus of E4S is uniformed members of DoN, not the Navy's civilian scientists and engineers who comprise the NR&DE's acquisition workforce (AWF). Continuous learning (CL) for the AWF is addressed in DoD Instruction 5000.66, which requires that "all AWF members must engage in at least 80 hours of CL every two years" (Department of Defense [DoD], 2017). While these recertification requirements enable the AWF to keep up with changing structures, resources, policies, and procedures necessary to manage acquisition programs, they do not address how emerging technologies impact the Navy's ability to fight and win wars.

Findings and Conclusions

In an increasingly volatile, uncertain, complex and ambiguous (VUCA) world, the Navy's success will depend on developing a culture that values learning, strategic agility, collaboration and innovation. This will require strategies supported by appropriate organizational structures, tasks and practices, with alignment of training, education, informal continuous learning, rewards and incentives.

The scientists and engineers of the Navy's AWF comprised of more than 2000 PhDs, are highly skilled in their individual science and engineering disciplines. In a VUCA world in which technology advances are increasingly led by the global commercial market, how might the AWF broaden awareness in interdisciplinary technology advances that are necessary for the Navy to fight and win wars? We found that COIs and communities of practice (COPs) can serve as a valuable, continuous learning complement to formal education and training opportunities.

The military services are experimenting with COIs and COPs such as the Navy's ST-COI and the Army's Mad Scientist. Educational theorist Etienne Wegner considers COPs, a term he coined, as a robust strategy for professional learning, since knowledge sharing and narration of work make implicit knowledge more visible, and new ideas often come from diverse networks outside the organization (1998). Essentially, COIs and COPs enable the integration of work and learning.

Recommendations for Further Research

In order to continue and expand the ST-COI as a continuous learning opportunity for DoN, the Naval X organization in the office of the Assistant Secretary of the Navy for Research Development and Acquisition's and the Navy's Chief Learning Officer could explore possible organizations as host-facilitators, considering the Naval Postgraduate School (NPS) and/or the Naval War College as sites, as the E4S is explicit in recognizing the value on continuous learning for the Department of Navy. Additionally, research could be conducted to create a holistic Naval education strategy that includes the Navy's civilian workforce, especially the scientists and engineers of the acquisition workforce. In tandem, exploration of how COIs and COPs can add value to the Acquisition workforce by expanding knowledge sharing across DoN, DoD, and the federal government would be a valuable effort.

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Acronyms

acquisitions workforce	AWF
continuous learning	CL
community of interest	COI
community of practice	COP
continuous education units	CEUs
Defense Advanced Research Projects Agency	DARPA
Department of Navy	DoN
Department of Defense	DoD
Deputy Assistant Secretary of the Navy	DASN
research and development	R&D
Naval Research and Development Establishment	NR&DE

research, development, test and evaluation	RDTE
strategic thinking	ST
United States Navy	USN
volatile, uncertain, complex and ambiguous	VUCA