USS *Nautilus* entering New York harbor August 25, 1958, after voyage under North Pole (U.S. Naval History and Heritage Command)

Military Transformation

Applying the Kotter Eight-Step Methodology for Change in the U.S. Armed Services

By Hassan M. Kamara

We should value the faculty of knowing what we ought to do and having the will to do it. Knowing is easy; it is the doing that is difficult. The critical issue is not what we know but what we do with what we know. The great end of life is not knowledge, but action.

—Admiral Hyman G. Rickover
San Diego Rotary Club, February 10, 1977

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The global security environment is unstable, characterized by concerns such as revisionism and breaches of international norms by powerful nation-states (Russia and China), development and proliferation of weapons of mass destruction, terrorism, persistent conflict, and worsening

global climate with implications for food security. These trends will likely persist in the future, and their grave strategic and operational implications for the Armed Forces necessitate continued military transformation. Given the inherent complexity of organizational transformation in the U.S. military, using a highly effective change management approach is vital for success. To this end, this article considers how the John Kotter Eight-Step Process for Leading Change can help the Services transform to attain their long-term modernization objectives. Through adaptive application of the tenets of the Kotter process for leading change, the military can successfully implement transformation initiatives in support of their long-term modernization objectives.

Using the Navy's successful nuclear propulsion transformation effort led by Admiral Hyman G. Rickover as a case, this article highlights the applicability and utility of Kotter's methodology to military transformation. By analyzing this highly successful mid–twentieth century military transformation through the lens of the Kotter change methodology, this article highlights insights that can help the Armed Forces adaptively apply the methodology to successfully prosecute contemporary transformation efforts. The article also highlights concerns that could cause a change effort to fail. John Kotter concurs "that major change will not happen easily for a long list of reasons" and identifies factors of failure in each step of the change process to caution change leaders.[1]

Admiral Rickover was known to be quite cantankerous and abrasive at times, and it seems this demeanor soured interpersonal relationships that could have strengthened his guiding coalition and ultimately helped his cause. Interestingly, these same personality traits—which are generally antithetical to the coalition-building tenet of the Kotter change methodology—also seemed to have helped Rickover spearhead the Navy's nuclear propulsion transformation. Some scholars share this observation. For example, Thomas B. Allen and Norman Polmar write that Rickover's "ill-tempered nature was necessary" to realize the nuclear submarine.[2] Ultimately, the consistency of Rickover's transformation efforts with the Kotter change methodology helps explain why the change was successful and highlights insights for contemporary military transformation.

Concepts

A brief discussion of modernization and transformation is essential to fostering understanding and clarity in the ensuing analysis. In this article, *modernization* is defined as the progressive transition of the present or status quo, through transformation, into the future.[3] For the Armed Forces, modernization carries implications for every aspect of the institution (doctrine, organization, training, equipping, and others) based on inherent or nested transformation efforts.

Military transformation refers to specific changes a Service plans and implements over time that aggregate to realize modernization objectives. In other words, diverse transformation efforts in different areas within the Services aggregate over time to realize broader modernization objectives. Consistent with this understanding, the Army uses the DOTMLPF-P (doctrine, organization, training, materiel, leadership, personnel, facilities, and policies) framework as a change management tool to ensure synergy among individual transformation efforts, and with the status quo, to modernize the institution. The Army states that "change deliberately executed across DOTMLPF elements enables the Army to improve its capabilities to provide dominant land power to the joint force."[4]

Nuclear Transformation and the Kotter Change Model

The Kotter Eight-Step Process for Leading Change is an enduring methodology for successful change implementation. This methodology takes a holistic approach to realize lasting change. Among other things, the methodology advocates building a strong, enduring impetus for change that will inspire people and drive supportive ensuing activities. By diligently aligning change efforts to the eight-step process, institutions can create conditions supportive of lasting, viable change.

Though Kotter's methodology originated and is primarily used in the private sector, it can be successfully applied to military transformation—with necessary adaptation for governmental bureaucratic nuances—for the ultimate modernization of the Armed Forces. This hypothesis is proved by successively highlighting the consistency of arguably one of the most prolific military transformation efforts since World War II—nuclear propulsion in the Navy—with the eight steps of the Kotter methodology for leading change. Some might argue that adapting what they view as primarily a change model for a business or company to change in the military is unrealistic given the expansive bureaucracies of the Services as well as civil-military concerns in interacting with Federal agencies outside the Department of Defense and industry. Through its study of the nuclear propulsion transformation case, this article shows that Kotter's methodology can be successfully applied to Service transformation in a way that mitigates the constraints to change inherent in Service bureaucracies, Congress, Federal agencies, and industry.

*1. **Create a Sense of Urgency.*** This is arguably the most important step in the change process because it advocates identifying and highlighting the enduring, urgent reasons for change to the organization or institution. This step provides the impetus that drives subsequent steps in the change or transformation process. A sense of urgency for change is arguably what the change agent needs most to enlist and motivate change activists and supporters within and without the organization. Writing on the importance of creating a sense of urgency in the initial step, Kotter states that "when the urgency rate is not pumped up enough, the transformation process cannot succeed and the long-term future of the organization is put in jeopardy." According to Kotter, the urgency rate "is when about 75 percent of a company's management is honestly convinced that business-as-usual is totally unacceptable."[5]

The U.S.-Soviet military rivalry during the Cold War fomented a sense of urgency that helped Rickover gain support for nuclear propulsion transformation within the Navy, Congress, and White House. Prior to the development of nuclear reactors for propulsion at sea, U.S. submarines used a combination of diesel combustion engines (which only ran, and charged the submarine's electric batteries, when it surfaced) and electric batteries (which powered the vessel when it was submerged). The batteries could only power submerged submarines for a relatively short time, and at rather slow speeds. The lack of submerged operational endurance and speed in U.S. submarines, coupled with the threat of a growing Soviet submarine force, created a sense of urgency for the development of nuclear propulsion. The military and technological competition with the Soviet Union reached a new high on October 4, 1957, when it successfully launched Sputnik 1 into orbit. The fiscally conservative Eisenhower administration needed to offset the apparent Soviet advancement with an American technological advancement. According to Dave Oliver, "To answer this Soviet technical challenge, President Eisenhower . . . looked for inexpensive answers. Controlling military spending was important to the President's domestic and military priorities."[6] Rickover's nuclear propulsion transformation efforts had produced its first prototype submarine, the USS *Nautilus*, at the relatively cheap cost of $70 million (made possible by the liberal use of used and refurbished parts). This economically produced prototype aptly suited the Eisenhower administration's preference for decreased military spending, while offsetting Soviet technological advancements. So, despite Rickover's apprehension about stressing the platform prematurely by attempting too great a feat, President Eisenhower used *Nautilus*'s submerged transition of the Arctic as his administration's response to Sputnik 1. The *Nautilus,* on successfully completing a submerged transit of the Arctic, altered the strategic balance of the Cold War by demonstrating the new U.S. ability to threaten the Soviet homeland and military with a concealed, highly mobile, strategic nuclear strike capability.[7] This emergent strategic value lent an increased sense of urgency to Rickover and the Navy's transformation efforts and heightened the willingness in Congress and the White House to support the Navy's nuclear propulsion transformation.

2. Build a Guiding Coalition. Like the preceding step, this one is seminal in that it is essential for progress in the ensuing steps. The guiding coalition is typically a core group of people (approximately up to 50) who feel the urgency for change, share the underlying strategic vision of the change or transformation, and are committed to communicating and spreading the vision.[8] In other words, the people in a guiding coalition are deeply committed to implementing the change. Kotter concurs by writing that the "guiding coalition of people deeply feels the urgency."[9] The guiding coalition is typically diverse in that it comprises individuals from different areas of the institution who have the intellect, skills, and capacity within the organization's hierarchy to address the strategic challenges of the transformation effort. In many cases, the guiding coalition is comprised of powerful members within the organizational hierarchy. For major military transformation efforts, the guiding coalition is greatly helped by incorporating those powerful change agents outside the Services that have the power to influence or spur change in the Services—these are the Members of Congress and the President.

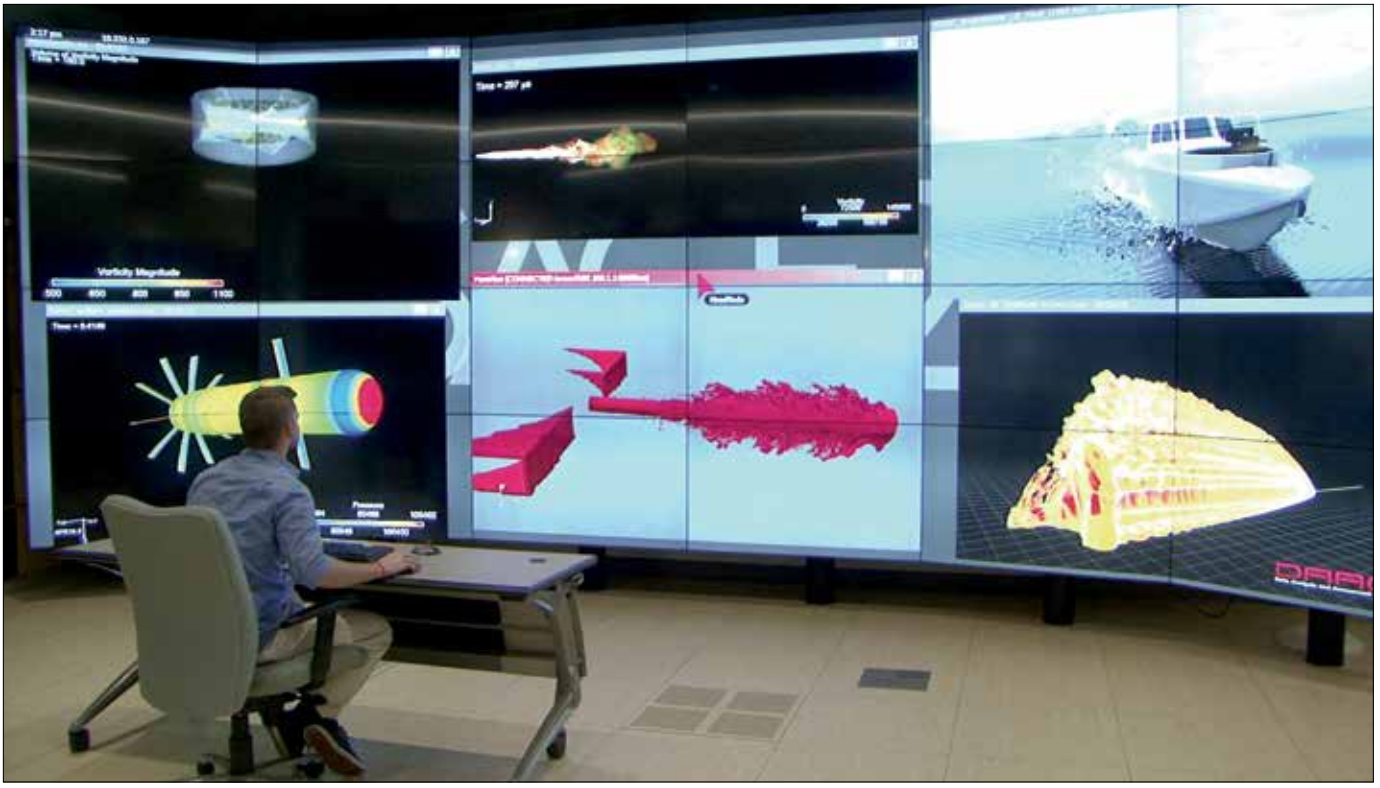
From the above understanding of a guiding coalition, it is apparent that Rickover was successful in large part because he built a capable and powerful guiding coalition to pioneer nuclear propulsion in the Navy. His coalition included some of the best civilian subject-matter experts in the nascent field of nuclear power. Oliver writes that "Rickover was in the habit of taking his own people to meet with experts in the burgeoning nuclear field." Among the experts Rickover consulted was Enrico Fermi, winner of the 1938 Nobel Prize for Physics.[10]

Rickover also recruited bright and capable naval officers. He selectively hand-picked well-respected officers from the submarine community. Theodore Rockwell concurs and writes of Rickover's "slow process of recruiting additional bright young engineers for his permanent headquarters staff." Among the recruited was Eugene P. "Dennis" Wilkinson, a submariner with eight war patrols during World War II, who would go on to captain the USS *Nautilus*, and the USS *Long Beach*, the Navy's first nuclear surface ship.[11] Among some of the talented naval officers Rickover interviewed and approved for hire was Admiral Elmo Zumwalt. Though he declined to work for Rickover in the nuclear submarine community, Zumwalt would go on to become the youngest Chief of Naval Operations.[12]

Rickover had the backing of powerful Members of Congress and the President in the nuclear propulsion transformation effort. Powerbrokers in Congress, such as Senator Brien McMahon (D-CT)—then Chair of the Joint Atomic Energy Committee—were part of Rickover's guiding coalition, and they helped him gain the organizational authority in the Atomic Energy Commission (AEC) necessary for successful transformation.[13] Additionally, through the cost-effective development and fielding of the USS *Nautilus*, Rickover gained the support of the Eisenhower administration, as well as the American public.

3. Form a Strategic Vision and Initiatives. A successful transformation effort requires a vision of the future that is easy to communicate and understand. This requirement is critical for cultivating rapid, widespread support for change across the organization. In other words, a clear and pragmatic vision that is consistent with the prevailing sense of urgency is vital to realizing meaningful transformation. Kotter writes that "without a sensible vision, a transformation effort can easily dissolve into a list of confusing and incompatible projects that can take the organization in the wrong direction or nowhere at all."[14]

While observing and studying nuclear reactor power production in the



U.S. Army Research Laboratory's DOD Supercomputing Resource Center uses high-performance computing to increase mission effectiveness and advance modernization priorities, November 2017 (U.S. Army)

Daniels Power Pile project at Oak Ridge, Tennessee, in 1946, Rickover envisioned the safe and effective use of nuclear power for propulsion in submarines. Interestingly, the Navy had considered and committed some funds to the study of using nuclear power for propulsion in submarines as far back as 1939. According to Thomas Allen and Norman Polmar, in March of 1939 Rear Admiral Harold Bowen, Chief of the Bureau of Steam Engineering, authorized $1,500 to fund research on nuclear fission (a fission chamber) "that would generate steam to operate a turbine for a submarine propulsion plant."[15] The war temporarily stalled efforts on this transformation initiative in favor of the development of the atom bomb, but after the war in 1946, the Navy sent Rickover and other capable officers to study nuclear reactors. The use of nuclear power for submarine propulsion was an easily understood vision, even to laymen unfamiliar with naval engineering and nuclear physics, and this simplicity aided Rickover in convincing others to support the transformation. Moreover, Rickover's grasp of the subject matter and aggressive consultation and use of experts helped him convincingly articulate the strategic viability of this vision within the context of the Cold War and the feasibility of its attainment to powerful stakeholders and capable supporters within the Navy, Congress, and White House.

*4. **Enlist a Volunteer Army.*** Kotter asserts that employees and members of an organization have to believe that "useful change is possible" to invest—up to the point of making personal sacrifices—in a transformation effort. Such belief in a transformation initiative cannot happen without clear, continuous, and credible communication aimed at winning hearts and minds in the organization.[16] In other words, once they have developed a clear future vision for the organization in line with the proposed transformation, change leaders have to employ every practical means and available opportunity to communicate both the vision and specific aspects of the change across the organization. Change agents in the guiding coalition have to clearly and persistently spread the word on how the change will better the organization relative to the present state in order to get widespread support throughout the ranks of the organization.

Rickover's communication of the vision for nuclear propulsion in the Navy was effective in terms of the powerful stakeholders and capable change agents. He was able to convince these stakeholders and agents that useful change in the form of nuclear propulsion could be attained, and was preferable, to the status quo (diesel combustion engines in submarines and ships). Arguably, it was the powerful conviction for change that Rickover invoked in influential stakeholders that got them to support the nuclear transformation he was pioneering. He successfully communicated the feasibility and necessity of nuclear propulsion to his immediate superior at the Navy's Bureau of Ships, Admiral Earle W. Mills, and, ultimately, the Navy's leaders, Admiral Chester Nimitz, Chief of Naval Operations, and the Honorable John L. Sullivan, Secretary of the Navy, to get their buy-in and commitment. Theodore Rockwell writes that Rickover crafted letters articulating the military necessity of

nuclear-powered submarines that Nimitz and the Navy Secretary signed and forwarded to the Secretary of Defense and Congress. These letters espoused the goal of completing a nuclear submarine prototype by the mid-1950s and designated the Bureau of Ships as the Navy's proponent for building the new platform.[17]

Legitimized by the Navy leadership's validation of the requirement for nuclear-propelled submarines, Rickover prevailed on the AEC, through Admiral Mills, to commit to partnering with the Navy on nuclear reactors for submarine propulsion. Impressively, Rickover's effective communication of the vision for naval nuclear propulsion and demonstrated grasp of the subject matter convinced Admiral Mills and Senator McMahon to appoint him as head of the Nuclear Power Branch within the Navy's Bureau of Ships and Director of Naval Nuclear Energy within the AEC, respectively.

*5. **Enable Action by Removing Barriers.*** Successfully implementing a new or emerging change in an organization requires removal of organizational hindrances coupled with the institution of incentives to promote the change. Sometimes the residual organizational structure and existing policies become an obstacle to the successful implementation of a transformation initiative. According to Kotter, simply communicating the vision and details of the new change is not enough, "renewal also requires the removal of obstacles." Kotter writes that in most cases, even though employees and members of the organization may have bought in to the change, real hindrances or "blockers" may prevent them from acting to implement the change within their sphere of the organization.[18]

A key organizational hindrance that could have scuttled Rickover's transformation efforts at the start was the decentralization of authority for nuclear reactor development and submarine (platform) construction. Nuclear reactor development for the propulsion of submarines and ships was the responsibility of a nuclear reactor suborganization within the AEC, while the Navy's Bureau of Ships managed nuclear submarine development. Rickover understood that centralizing program managerial authority over nuclear reactor development in the AEC, and nuclear submarine development in the Bureau of Ships, would empower him with the level of command (ability to describe and direct, as well as incentivize and discipline) necessary for successful transformation. To this end, Admiral Rickover aggressively sought and was successful in consolidating control over the organizational structures that were central to successfully pioneering and implementing nuclear propulsion in the Navy. According to Oliver, "Congress established Rickover as the director of naval nuclear energy in the Atomic Energy Commission."[19] Rockwell writes that at the Bureau of Ships, Admiral Mills "chose Rickover and made him head of a new Nuclear Power Branch (designated Code 390) within the bureau's Research Division."[20] This consolidation of authority gave Rickover the mandate and power to effectively pioneer nuclear power transformation in the Navy. Francis Duncan writes that under Rickover (no doubt equipped with the needed authorities) "Naval Reactors did not coordinate, administer, or manage: it decided and directed."[21] It is conceivable that if Rickover had not been so empowered, the factions resistant to the change within the AEC and Bureau of Ships would have wielded and exercised the power to delay and possibly thwart the transformation.

*6. **Generate Short-Term Wins.*** Setting and attaining some short-term goals is vital to building and sustaining the forward momentum of a change or transformation initiative. Kotter concurs, and writes that "real transformation takes time, and a renewal effort risks losing momentum if there are no short-term goals to meet and celebrate."[22] Supporters and advocates of a change or transformation initiative can become disillusioned if it is not demonstrating improvement relative to the current state of affairs in 1 to 2 years. According to Kotter, "without short-term wins, too many people give up or actively join the ranks of those people who have been resisting change."[23]

According to Norman Polmar and Thomas B. Allen, the keel of the USS *Nautilus* was laid by Harry Truman on June 14, 1952, and the submarine was launched in January 1954.[24] Thanks to the significant technological maturation work on nuclear propulsion reactors going as far back as 1939, this relatively short time to successfully build the first nuclear-powered submarine helped Rickover garner support within the Navy, U.S. Government, and Nation for nuclear propulsion in the early stages of transformation. Moreover, the second nuclear submarine, the USS *Seawolf*, was launched just a year later in July 1955. Duncan describes the impact of successive short-term wins to the nuclear propulsion transformation effort. He writes that "as one nuclear ship after another—beginning with the *Nautilus*—went to sea, Rickover won a reputation with Congress of a man who got things done, and the naval nuclear propulsion program was recognized as one of the most efficient enterprises in government."[25]

Additionally, *Nautilus*'s record-setting voyage under the Arctic and the resulting shift in the strategic nuclear balance of the Cold War constituted a major short-term win for Rickover's transformation efforts—one that earned him the resources and mandate to continue this change. According to Oliver, Rickover used *Nautilus*'s Arctic crossing to support his transformation efforts: "He would tout the event to cement congressional support for nuclear submarines."[26]

*7. **Sustain Acceleration.*** This step cautions change leaders and agents against overconfidence in the irreversibility of the nascent transformation initiative they are pioneering. Sometimes change leaders tend to believe, mostly based on short-term successes, that the transformation they have realized cannot be reversed by those opposed to it. Kotter advises against this, and writes that "while celebrating a win is fine, declaring the war won can be catastrophic." Instead, Kotter advises change leaders to use the capital of goodwill and support won by short-term victories to solve big challenges to lasting change, and argues that successful change leaders use the credibility won by initial transformation successes "to go after systems and structures that are not

Soldiers assigned to 1st Battalion, 63rd Armor Regiment, 2nd Armored Brigade Combat Team, 1st Infantry Division, conduct training with M1A2 Abrams tank during Combined Resolve X Live Fire Exercise at Grafenwoehr, Germany, April 19, 2018 (U.S. Army/Miguel Pena)

consistent with the transformation vision and have not been confronted before."[27]

As a change leader, Rickover actively consolidated the early wins and improvements of the transformation he was implementing. Through efforts that spanned engineering and technical innovation, education, and talent management, he sustained the momentum of transformation to produce more change. Ultimately this momentum would result in the institutionalization of this transformation.

In terms of engineering and technical innovation, Rickover inspired confidence and support with initial change improvements that set favorable conditions for sustained long-term advancements. For example, he increased the radiation shielding of the nuclear reactor on submarines to significantly lower the radiation exposure (and consequent radiation sickness) of the crew. This greatly benefited crews and the overall development of the submarine force. For example, U.S. submarine crews were able to return from patrols, refit, and resume new patrols much faster than their Soviet counterparts, which means they grew experience faster. On the other hand, Oliver writes that the Soviet submarine crews of this era experienced considerable radiation exposure and sickness from less safe designs, to the extent that crews had to be put on "enforced leave away from nuclear plants . . . to permit the sailors' bone marrow to regenerate."[28]

Additionally, having successfully demonstrated the relatively safe use of nuclear propulsion in submarines, Rickover worked diligently to incorporate the technology into the surface fleet. To this end, Rickover and his team were successful in pioneering the first nuclear surface ship—the USS *Longbeach*. Undoubtedly, this succeeding accomplishment helped underscore the long-term utility of nuclear propulsion transformation over the status quo. Today's nuclear-powered aircraft carriers are in part a product of Rickover's continued innovation with nuclear power, which is consistent with the continuous change improvement advocated by the Kotter change model. This anecdotal evidence proves that the Kotter model is not only a good approach for one time change in a private-sector organization, but also can actually be utilized for enduring military modernization.

8. Institute Change. A change or transformation's irreversibility is greatly dependent on the activities in this step. The step advocates the acculturation of

an organization to a transformation or change initiative. Kotter posits that "until new behaviors are rooted in social norms and shared values, they are subject to degradation as soon as the pressure for change is removed."[29] Cultural change is critical because an organization is less likely to reverse a transformation or change if it is now part and parcel of the organization's culture (the way it views itself and operates). According to Kotter, "change sticks when it becomes 'the way we do things around here,' when it seeps into the bloodstream of the corporate body."[30]

Admiral Rickover changed the Navy's culture to ensure that the transformation he had pioneered would endure after him. To this end, Rickover was fortunate to have been left in his position for four decades to implement this institutional transformation—something that is unlikely to happen in today's military. Rickover was relentless in creating a new subculture within the Navy that was supportive of perpetuating this change. He selectively recruited talent and instituted a career management model that helped attract, educate, challenge, and advance the high-performing talent he had recruited to perpetuate and institutionalize the transformation. Furthermore, he promoted and strictly enforced a culture of continuous process improvement and professional excellence.

Rickover was personally engaged in the recruitment, education, and management of the officer (and to some extent noncommissioned officer) talent in the nuclear submarine community—a key factor in consolidating and generating continuous change improvements. As mentioned earlier, Rickover had a rigorous screening process for new talent. According to Admiral Zumwalt's narrative of his interview with Rickover, it is clear that Rickover personally interviewed and hired new high-performers to continue accelerating the change.[31] He also structured the career development model (punctuated by intensive periods of study, and experiential learning and testing, followed by operational service) for nuclear submarine personnel. From Duncan's account, it is evident that Rickover's career model ensured the high standard of education, self-study, and performance necessary to grow talent that would maintain the momentum of the transformation.[32] This model also ensured a viable career progression track that would eventually make it possible for members of the nuclear submarine community to viably compete for flag rank, and even become Chief of Naval Operations (the current Chief of Naval Operations, Admiral John M. Richardson, last held Rickover's office as Director of Naval Reactors).

Within the nuclear submarine community, Admiral Rickover established and enforced a subculture of exacting engineering standards for both the Navy and private industry for dealing with the complex engineering inherent in nuclear reactors. For context, Oliver compares Rickover's exacting process standardization for the development and operation of naval nuclear reactors to popular management applications for quality and efficiency: Bill Smith's Six Sigma methodology for performance and quality and W. Edwards Deming *Kaizen* principles.[33] Rickover's subculture of high standards minimized failures, which sustained the momentum of the transformation and helped the change take root within the submarine community and the Navy.

In addition to enforcing high standards for processes, Rickover's successes in naval nuclear reactors show he recognized the integral importance of Continuous Process Improvement to the long-term, successful institutionalization of nuclear propulsion in the Navy. Subsequently he built a team and culture that practiced Continuous Process Improvement, which helped produce more change improvements. Oliver concurs, and writes that Rickover "gathered a team of people that would inculcate a system of continuous improvement into submarines. With the culture Rickover established, American submarines become so technically advanced that they were essentially invulnerable."[34]

Contemporary Transformation Efforts in the Armed Forces

The demonstrated consistency of the Navy nuclear propulsion transformation effort with the Kotter methodology for change highlights not only the adaptive applicability of the methodology to military transformation but also offers important insights for contemporary transformation efforts in the U.S. military. These insights should be caveated with the understanding that Admiral Rickover served as Head of Naval Reactors for over 30 years, which helped the nuclear propulsion transformation effort. However, Rickover's extensive tenure as Head of Naval Reactors should not be assumed as the sole reason for success. This was an excellently executed military transformation effort. Moreover, its consistency with the Kotter model highlights the potential utility of adapting the model to help manage contemporary Service transformation efforts. It is likely impossible for contemporary military change agents to remain in a leadership position and drive a change as long as Rickover did. However, the advantage of continuity that nuclear propulsion transformation enjoyed under Rickover can be emulated by enlisting a younger generation of change agents when building the guiding coalition that Kotter recommends. In other words, Rickover's extended tenure does not disqualify the Navy nuclear propulsion transformation effort as an excellent example of military organizational transformation consistent with the Kotter change methodology.

Rapidly modernizing potential peer adversaries create a sense of urgency for U.S. military modernization, much akin to that created by the Soviet Union during the Cold War. Emulating Rickover, change agents within the military should leverage the rapidly growing capabilities of potential peer adversaries and general global instability to cultivate a sense of urgency for transformation efforts. This will require military change leaders to clearly develop and articulate how contemporary transformation efforts will serve as economical alternatives for shifting the strategic competition in America's favor.

Some of the challenges Rickover faced many decades ago are still relevant to change or transformation efforts now. For example, Service and Defense

Department leaders, Congress, and the President are still powerful allies to gain and leverage as part of the guiding coalition for a major and lasting change in the Armed Services. These allies can help change or institute policies and legislation supportive of a change, as well as resource much-needed funding to finance the change. A compelling sense of urgency, coupled with a comprehensible, viable vision that is widely communicated by known and respected change leaders (backed by organizationally recognized subject-matter experts) will win such powerful allies.

Additionally, change leaders should seek empowerment to directly influence activities (remove critical hindrances to transformation) in all the key organizations required to implement lasting change. Rickover sought empowerment in both the AEC and Navy Bureau of Ships to ensure that he could direct nuclear reactor development and submarine construction and remove hindrances to successful transformation.

The importance of securing short-term wins cannot be overstated for today's transformation efforts. The cost and relatively short development schedule for the prototype USS *Nautilus*, as well as its successful performance demonstration in crossing the Arctic, added significant momentum and political capital to the nuclear propulsion transformation. Of note is that the *Nautilus* was aligned to long-term transformation objectives, and viable enough for Navy and national leaders to view and tout as progress from the status quo. Consistent with this successful precedence, transformation efforts should responsibly seek and exploit opportunities for strategic short-term wins that are aligned to long-term goals. Notably, Service partnerships with industry are invaluable in realizing strategically viable short-term wins, so Service change leaders should endeavor to cultivate them. The Navy's close relationship with industry was vital in realizing successive short-term wins for the nuclear propulsion transformation effort.

Finally, military transformation efforts will ensure a higher probability of lasting success by identifying and changing, through policy and legislative changes, existing value systems and practices that are incompatible with the nascent change. Emulating Rickover's example in aggressively building the exacting organizational standards, process improvement mechanisms, selective talent recruitment, and career management models supportive of the Navy's nuclear transformation will help contemporary change leaders consolidate improvement, produce additional change, and institutionalize the new approaches that have been created.

The complexity of the contemporary global security environment and the anticipated challenges of the future increasingly stress the need for sustained modernization of the U.S. military. This article explores a way to help the Armed Forces successfully transform. By highlighting the consistency of the highly successful Navy nuclear propulsion transformation with the John Kotter methodology, the study not only shows that Kotter's change methodology can be successfully applied to military transformation with some adaptation, but also highlights useful historical transformation insights in the process. So, in light of the contemporary and future global security environment, and their modernization implications for U.S. forces, Kotter's Eight-Step Process for Leading Change can—with adaptive application—help the Armed Forces successfully transform to attain their long-term modernization objectives. **JFQ**

Notes

[1] John P. Kotter, *Leading Change* (Cambridge, MA: Harvard Business Review Press, 1996), 20.

[2] Thomas B. Allen and Norman Polmar, *Rickover: Father of the Nuclear Navy* (Washington, DC: Potomac Books, Inc., 2007), ix.

[3] This definition of *modernization* is consistent with the following characterization by Pippa Norris: "'Modernization' refers to a multitude of systemic-level trends—social, economic, demographic, and technological—transforming the structure of societies from rural to industrialized, and from industrialized to post-industrial." See Pippa W. Norris, *Democratic Phoenix: Reinventing Political Activism* (Cambridge, MA: Cambridge University Press, 2003), 2.

[4] Field Manual 1, *The Army* (Washington, DC: Headquarters Department of the Army, 2012), 4-11.

[5] John P. Kotter, "Leading Change: Why Transformation Efforts Fail," *Harvard Business Review*, March–April 1995, 60, 62, available at <https://oupub.etsu.edu/125/newbudgetprocess/documents/leading_change_why_transformation_efforts_fail.pdf>.

[6] Dave Oliver, *Against the Tide: Rickover's Leadership Principles and the Rise of the Nuclear Navy* (Annapolis, MD: Naval Institute Press, 2014), 28.

[7] Ibid., 30.

[8] Kotter, "Leading Change," 62.

[9] John P. Kotter, *Accelerate: Building Strategic Agility for a Faster-Moving World* (Cambridge, MA: Harvard Business Review Press, 2014), 29.

[10] Oliver, *Against the Tide*, 16–19.

[11] Theodore Rockwell, *The Rickover Effect: How One Man Made a Difference* (Annapolis, MD: Naval Institute Press, 1992), 66.

[12] Elmo R. Zumwalt, Jr., *On Watch: A Memoir* (New York: Quadrangle, 1976), 87–96.

[13] Oliver, *Against the Tide*, 17–19.

[14] Kotter, "Leading Change," 63.

[15] Allen and Polmar, *Rickover*, 20–21.

[16] Ibid.

[17] Rockwell, *The Rickover Effect*, 56–57.

[18] Kotter, "Leading Change," 64.

[19] Oliver, *Against the Tide*, 19.

[20] Rockwell, *The Rickover Effect*, 65.

[21] Francis Duncan, *Rickover and the Nuclear Navy: The Discipline of Technology* (Annapolis, MD: Naval Institute Press, 1990), 6.

[22] Ibid., 65.

[23] Ibid.

[24] Norman Polmar and Thomas B. Allen, *Rickover: Controversy and Genius* (New York: Simon & Schuster, 1982), 150–155.

[25] Duncan, *Rickover and the Nuclear Navy*, 14.

[26] Oliver, *Against the Tide*, 30.

[27] Kotter, "Leading Change," 66.

[28] Oliver, *Against the Tide*, 53.

[29] Ibid., 67.

[30] Ibid.

[31] Zumwalt, *On Watch*, 89–94.

[32] Duncan, *Rickover and the Nuclear Navy*, 247–249.

[33] Oliver, *Against the Tide*, 73.

[34] Ibid., 136.