

Matrix Wings

Continuous Process Improvement an Operator Can Love

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In this fiscally-constrained environment, we need every Airman engaged in finding smarter ways to do business.

—Gen Larry Spencer
Former Air Force Vice-Chief of Staff

General Spencer's call to managerial arms is certainly one that our Air Force has heard before, but it is more relevant than ever. The service took this advice to heart and attempted to institutionalize Total Quality Management (TQM) in the form of Quality Air Force (QAF) over two decades ago, only to see the program wither and die after extensive effort to make it work. Yet, the necessity to get the job done smarter and more efficiently is compelling, and there should be

little argument that application of the concepts behind quality management and continuous improvement is necessary to find those smarter ways to conduct the mission and to do business. That need generated Air Force Smart Operations for the 21st Century (AFSO21), the latest comprehensive effort at finding the right approach for implementing a continuous process improvement (CPI) model intended to span “all of our environments—operational, support, and otherwise.”¹ This comprehensive methodology employs concepts from “Lean, Six Sigma, Theory of Constraints, and Business Process Reengineering,” and its seven-year phased approach reminds one of the extensive phased preparation involved with QAF.²

All of that may be well suited for support units and agencies, assuming we can find the additional time and effort to master, apply, and maintain AFSO21. However, imposing yet one more structured management methodology on operational units, even if done in phases, is unlikely to meet with any greater success than did TQM. More probably, it will simply contribute to the jaundiced view most operators have of anything related to private-sector management practices; in the words of a retired chief master sergeant, “I’ve been zero defected, total quality managed, micro-managed, one-minute managed, synergized, had my paradigms shifted, had my paradigms broken, and been told to decrease my habits to seven.”³ With AFSO21, that comment could be expanded to include “Leaned, Six-Sigma’d, had my theories constrained, had my processes reengineered, and been OODA-looped.”

This article is not a critique of the validity of any of those methodologies because all of them bring very relevant capability to improving processes. Rather, it is a critique of returning to that managerial mind-set that helped doom QAF. Operational units could use CPI and could employ the principles in AFSO21 but preferably by employing a version that does not take time away from mission preparation/execution and that is specifically tailored for their culture. Understanding those two critical dimensions of mission orientation and culture is imperative if any CPI program is to succeed in the operational world, and it is well worth reviewing them to set the foundation for the best way to institutionalize CPI at the wing level in the Air Force.

For the foreseeable future, two challenges appear dominant: (1) continuing to meet mission requirements using fewer resources and funding and (2) adapting to meet—and preferably to stay ahead of—the constantly evolving, expanding battlespace that has taken on new dimensions as well as new, often novel, threats. Those issues demand adaptability and CPI; they are driving our military’s current focus on both. When he served as chairman of the Joint Chiefs of Staff, Gen Martin Dempsey emphasized the necessity of adaptability in our leadership, pushing decision making out to the leaders who conducted operations—those individuals best positioned to evaluate the situation and determine the most effective courses of action in a volatile, uncertain, complex, and ambiguous environment.⁴ On the organize, train, and equip side of the operational equation (often referred to as the “peacetime” mode), without question we must constantly look for better ways of doing each of those tasks—finding methods of implementing CPI and innovation that are part of the process, not exceptional to it, and that *do not add significantly* to the already heavy demands of mission-oriented duties. Ideally, new methods should simply reorganize those duties into a more streamlined structure.

Distinctions between the military and private sectors and between operational and support missions must be fully understood and addressed by any program that attempts to change the way our Air Force operates. If the relatively short history of TQM has shown us anything, it has demonstrated that attempts at grafting civilian or public-sector business concepts onto the military operational culture must proceed carefully, appropriately, and with full deliberation.

The Military and Continuous Process Improvement

To implement an effective version of CPI, one must assure that it is readily compatible with the culture of military operations since that is the foundation of America's military success. Operations should not be adjusted to fit a CPI mold or management culture; rather, CPI should be adapted to fit operational units. Without a fully supportive culture, CPI and other management initiatives will meet with resistance and will not endure.

The Uniqueness of the Military Culture

The essence of the American military is mission accomplishment based on protecting our nation, not generating profit for shareholders. That clear distinction between the armed forces and private sector must be kept in mind as we look to the latter for improvements in conducting military affairs. Few would deny that our leadership must concentrate on mission first, people always. The armed forces exist to defend the nation, and if the mission fails, they have failed in their obligation to the country. Yet, even when we consider America's lead in technology, we still recognize that our military personnel are the best in the world and the primary reason that the US military is so formidable (consequently, CPI and innovation have excellent potential in the services). Other countries may be able to field first-order weapons systems, but none can develop and conduct the advanced, complex concepts of joint, integrated warfare that America can. Such intricate operations depend on highly professional, intelligent, motivated, and capable Soldiers, Sailors, Airmen, and Marines, imbued with a culture of taking personal responsibility and initiative. The American military takes care of its people and enjoys a return on that investment in the form of mission accomplishment from mature leadership, improved capability, and high morale.

Those priorities—mission and people—present two criteria that are essential elements in the litmus test of any new concept recommended for use by operational military units. Will that concept serve the mission better? Will it make personnel more effective and efficient at conducting their missions, without adding to their duties (and therefore detracting from that efficiency)? Anything that ultimately takes time, effort, and resources away from mission preparation and accomplishment should be avoided.⁵ That is a prime reason (but certainly not the only reason) that the Air Force's earnest attempt at implementing TQM failed. Operators are driven by mission accomplishment based on a culture of initiative and empowerment, but that culture does not readily take to accepting managerial concepts that tend to diminish military focus.

Dr. Jekyll and Mr. Hyde: The Dual Nature of the Military Mission

If a business process is to apply to the operational military, it must meet yet a third criterion. It should be able to transition effortlessly from the organize, train, and equip peacetime side of the mission to conducting military operations up to and including combat. How many businesses procure systems, train their people, and then send them out to go to the sound of gunfire? This distinction best explains the disdain our military personnel have for the concept of management—they value leadership that is operationally competent, composed, and effective under pressure rather than managers who efficiently coordinate people and other resources to attain production goals. However, this disdain fails to acknowledge the legitimate roles of good management and stewardship in the peacetime mode and in Department of Defense (DOD) support operations.

Thus, any new process or policy intended for operational military applications should meet three criteria:

1. It must improve mission capability, directly or indirectly.⁶
2. It must make personnel more effective or efficient at conducting the mission.⁷
3. It should not obstruct a smooth and seamless transition into actual military operations, including combat.

In light of these criteria, how might the Air Force optimally implement CPI in its primary operational unit—the combat wing?

Continuous Process Improvement from a Wing-Level Operational Perspective

In contrast to the peacetime/wartime dichotomy inherent in operational DOD organizations, the support side of the department is well suited for using the processes, techniques, and tools of quality management and CPI. That suitability is more problematic for operational units for three reasons. First, the operational environment is much less stable, predictable, and controllable. Combat is an excellent example: good training, a clear mission objective, and thorough planning all help to reduce the volatility, uncertainty, complexity, and ambiguity that operators face, but few plans ever go as intended. Adaptability to the actual circumstances encountered is essential for mission success, and that is the point of General Dempsey's message.⁸ Even noncombat operations such as humanitarian assistance and disaster relief are prone to depart from the planning scenario once the operation meets actual conditions. Second, the mission is the top priority—carrying out that mission once our people enter the battlespace is essential. Expense, efficiency, and standardization play only a secondary role, especially if lives are at risk. Third, the elevated risk factor, an inseparable part of actual operations, is a major differentiator between operational and support missions, and addressing operational risk takes leadership, adaptability, and innovation. Our military does so with operational risk management (ORM), but in today's operations, mission success depends on General

Dempsey's call for adaptability by leadership at all levels in the field as operations are under way, as well as in preparation of the unit leading up to taking the field. Much of that turbulence extends into peacetime operations, which are designed to directly support the operational mission and which reflect many of those operational dynamics.

The Center of Gravity for Wing Continuous Process Improvement: Key Processes

AFSO21 focuses on key processes at the executive level, but the wing's key processes—those essential to conducting its mission—are vital to implementing a formal CPI approach in operational units. Wings generally will have a significant number of these processes, including launching aircraft and delivering bombs on target, maintaining base facilities, keeping the base secure, and providing full personnel support services.⁹ Such procedures deliver or directly contribute to mission results and generally are complete within themselves, starting and finishing within the wing. They almost always span multiple squadrons. Launching aircraft calls for runways, control facilities, maintenance, and mission-ready crews and aircraft; all of this and more would be part of this key process. Dropping bombs on target demands flight planning, intelligence, communications, trained aircrews, crew-rest facilities, logistics support, and so forth. The hierarchical structure inherent in a wing, illustrated in the figure below, runs counter to the grain of those processes. They are horizontal, so a hierarchical structure breaks them up into smaller, often uncoordinated parcels within the entire process—a fundamental shortcoming of hierarchical structures. That is a prime reason for designing matrix organizations: to overcome poor horizontal communication and teamwork as well as other hierarchical inefficiencies that all too often greatly reduce effectiveness, efficiency, and flexibility of procedures which span the enterprise. An environment conducive to CPI and innovation must start with a structure that supports them.

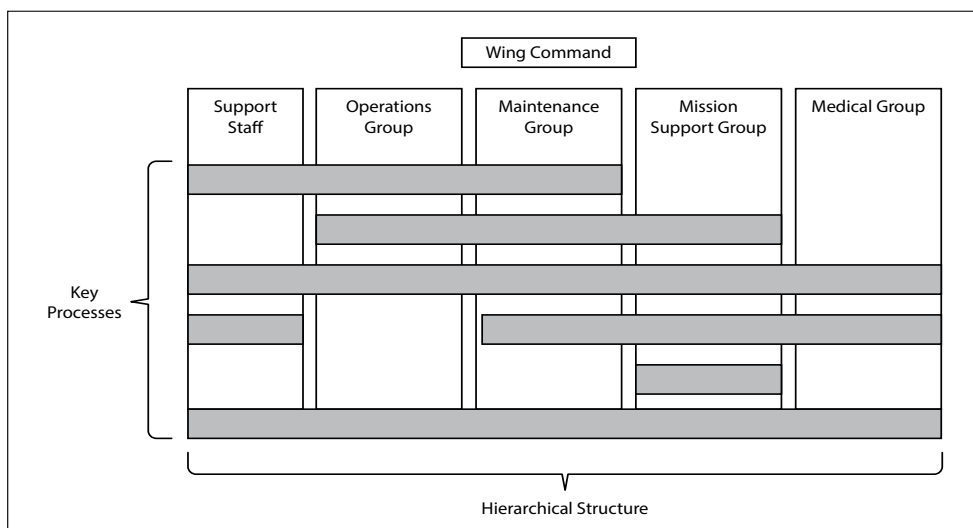


Figure. Common Air Force hierarchical wing structure and key processes

Redesigning the Wing as a Matrix Organization

If a wing commander were to visualize the ideal structure for managing his or her key processes, it would likely have the traits of keeping a clear mission focus; bringing together experts from all the functions of which the key process is comprised and having them work as a team; and keeping supervisors and commanders in a position to monitor the performance of their personnel and the outcomes of the process. All of the above could be part of a matrix approach to accomplishing key processes—one applicable in both peacetime and operational modes without violating any of the concepts of military leadership and chain of command. A matrix approach also dovetails nicely into the AFSO21 concept of organizing for process improvement.¹⁰ Our Air Force culture has a strong advantage in conducting matrix operations as well. Mission focus; the core values of service before self and excellence; and the emphasis on empowerment, adaptability, innovation, and diversity establish the right environment in which a matrix approach can thrive—an environment that private-sector matrix organizations strive for but often fail to attain.¹¹

Matrix structures have been around for over 40 years, allowing ample time to better understand and refine their application. Those lessons learned can be grouped into three domains: structure, processes, and psychology or culture.¹² Many private-sector corporations have found that if they implement the elements recommended, then matrix organizations give them a significant competitive edge in flexibility and innovation.¹³

Organizational culture, an essential element of the psychology domain, is considered the critical factor for success. “The key organizational task is not to design the most elegant structure but to capture individual capabilities and motivate the entire organization to respond cooperatively to a complicated and dynamic environment.”¹⁴ That quotation from a *Harvard Business Review* article could have come from the Air Force chief of staff. We have the psychology in place: mission focus, teamwork, service, empowerment, and innovation. In the private sector, building the necessary culture is one of the most difficult challenges for implementing successful matrix organizations.¹⁵

Another advantage the Air Force has over the private sector is that key processes are less likely to come and go due to quickly changing market pressures to which a private business must respond. Thus, the service provides stability that is an advantage for matrix organizations. The ways and means may change, but the ends of the key process are not as susceptible to external dynamics.

Cross-Functional Operations (Matrix) Teams

By the time the pilot climbs into the cockpit or the patrol squad leaves the security of the base, many moving parts have to fall into place. Training, planning, equipping, intelligence support, maintenance, logistics—all of those and more must contribute essential elements to the mission. When an aircraft is not ready to launch, is that status a scheduling, maintenance, or logistics problem? When representatives from all of those functions are part of the process management, determining the root cause of a problem becomes easier. Consequently, the team can more readily make corrections to fix issues, remove bottlenecks and smooth the process flow,

and envision process improvements and innovations that deliver their product more reliably and efficiently. To do so, its members need only demonstrate professional competence, mission focus, a can-do attitude, and common sense. No expertise in process improvement methodologies, analytical processes, or other CPI tools and techniques are necessary to create a smart, productive team that can deliver CPI. This arrangement into matrix or operations teams also supplies the team with dynamics and insights that best enable innovation. Putting together experts with a vested interest in the process will cause ideas to start flowing naturally, especially if leadership encourages innovation. If the goal of AFSO21 is to maximize value, eliminate waste, and implement CPI, then the best approach toward that end resides in operations teams.¹⁶

The simplicity of this concept is its prime virtue, raising the question of why cross-functional teams do not run the key processes in our normal operations. In addition to the almost inevitable resistance to change, one of the points of pushback is that members of the teams have two bosses: the team leader and their functional commander. At first glimpse, this situation would seem to violate the military's essential unity of command via the normal chain of command; it would also seem to remove the functional commander from a primary to a secondary role of oversight of the process components. For some military leaders, this transition strikes them as anathema, but normal military authority and responsibility can still be maintained.

Working Out the Details

On face value, using a matrix approach in Air Force wings has excellent potential. The problem involves converting that potential into improved mission execution and support—tailoring the operations teams and key-process oversight mechanisms to meet each wing's specific procedures. A bottom-up, not a top-down, design and implementation would be the best approach. Top-down guidance from higher headquarters would prove useful for framing the program to include expectations, but the actual matrix structure and corresponding networks should be set up by each wing and its operations teams. As suggested by the title of Christopher Bartlett and Sumantra Ghoshal's *Harvard Business Review* article "Matrix Management: Not a Structure, a Frame of Mind," successful matrix organizations are less about using a specific framework and more about applying the right perspective.¹⁷ Operations teams will also naturally tend to self-improve and evolve in response to changing operational conditions and experience, assuming the team has competent leadership and is properly empowered and motivated to manage the process.

Implementing operations teams would be relatively simple. First, each wing would need to identify its key processes (a laundry list of normal key processes put together by numbered air force staffs for their wings could act as a starting point), breaking down the major ones into manageable component procedures if necessary. For example, wings with multiple flying missions might prefer to separate key processes by airframe. The group commanders should then come to a consensus on selecting process owners, letting them choose the process manager and request

functional experts from the squadrons that have significant roles in each process. It would be up to the process owners (e.g., group or squadron commanders, deputy commanders, operations officers) to set the operational parameters, metrics, and other guidance for the team but emphasize the necessary empowerment to let the team run the process as it sees fit. Innovation should be encouraged, and recommendations for innovative process improvements would go through the process owner for approval. A senior leader council could also assess more comprehensive recommendations, including the use of AFSO21 procedures. The process owner would have the responsibility for ensuring that regulations, policy, and other applicable guidance are followed and that fresh ideas are properly vetted at the right levels for approval before implementation.

Once these teams became operational, the normal routine would experience very little disturbance. No CPI-specific training would be necessary although a familiarization course introducing them to the AFSO21 tools and techniques would prove useful. As the teams became more effective, they could select specific tools to improve their process management (having an AFSO21 expert at the wing to train and coach them would enable that option), but learning how to apply AFSO21 tools should be pull, not push, training. Functional experts would still perform their standard duties, and commanders would maintain control over their functional areas; group and squadron commanders would still have oversight and control of their people and process outputs. The main difference would be that the team structure would facilitate teamwork daily, including direct coordination between the essential functions in the process.

The Crux of Operations Teams: Leadership and Decision Making

The test of effective leadership in a matrix organization is the willingness to let the teams' leaders take charge of their processes and to give functional representatives the latitude to make decisions within their area of expertise. Because such willingness is the essence of empowerment, matrix teams offer a concrete path to truly empower Airmen in the accomplishment of their duties, enabling and focusing the military's best resource: its people. As with any scheme of empowerment, the process owner should confer decision-making authority but with clear decision-making boundaries that allow subordinates to direct operations within those bounds. This scenario is nothing new—in essence, it amounts to applying ORM program concepts to process management. Senior supervisors and commanders should collectively set the goals, metrics, and other parameters that define those boundaries. The oversight incumbent upon the functionally responsible commander keeps the chain of command in the loop and does not abrogate his or her ability to intercede in the decision-making process when warranted. As with ORM, a framework for escalating decision making should be put in place. That framework could be worked out within the vertical supervisory chain for each functional area representative, based on the nature of the decision to be made and on each supervisor's and commander's tolerance level and confidence in the functional representative. However, basic process-improvement decisions should be left to the team, and the urge to run

functional decisions up the chain should be discouraged. Policy decisions would be more appropriate for escalation to the proper level.

Ruth Malloy lists four essential skills for successful leadership of a matrix team: influence, self-awareness, empathy, and conflict management.¹⁸ Concerning influence, the essence of matrix teams is collaboration. When appropriate, decisions could be made collectively, but the team leader will need to recognize when he or she must make the decision unilaterally. Military leadership training emphasizes self-awareness, so the ability to adapt leadership styles and decision making to suit the context should be expected in the team leaders. Empathy and emotional intelligence should also come without prompting since they also are considered useful traits in military leadership. Conflict management is less of a concern in the military than in the private sector due to the clear lines of authority and responsibility under which military units, including operations teams, operate.

Depending on the key process, a junior-officer or field-grade-officer level would be the best one for team leadership (i.e., process manager). His or her influence would be established by rank, and as with all military leadership, should be earned by applying professional competence and good leadership ability. Networking, building good two-way communications channels horizontally and vertically, influencing, facilitating, and coaching: these matrix organization skills are desirable characteristics of military leadership in any context.¹⁹

Obtaining Organizational Buy-In

As with any significant change, one must overcome inherent organizational resistance. The cultural attributes normal to military organizations could be enablers in a transition to matrix teams, especially if leadership emphasized the mission focus, teamwork, and empowerment benefits while pointing out that CPI-specific training would not be necessary. Perhaps the toughest sell would be to senior leaders, who would feel that they were giving up some of their command authority. Building the right combination of horizontal and vertical control over the operations teams, as discussed previously, should allay that concern, as would the understanding that the chain of command still maintained operational responsibility for functional performance. The operations team concept would also work under deployed conditions but with reinforced emphasis on responsibilities of the functional chain of command. As with any organizational change, leadership at all levels would have to support it fully. Senior-level endorsement could be reinforced in periodic (e.g., monthly or quarterly) key-process performance briefings by the teams to the wing and group commanders. Senior-level briefings would also offer a good cross-check that the teams are concentrating on the larger mission, staying within bounds, and not losing themselves in internal preoccupation with their processes (i.e., “navel gazing”).²⁰

As is always the case with military units, leadership turnover could be detrimental to the continuity of the program. The wing commander must fully sponsor it and ensure that his or her replacement is fully briefed on the program’s implementation. Providing the rationale behind the matrix wing and the way it works should suffice to convince the new commander to adopt ownership and avoid disruption, especially because the matrix concept would be fairly transparent in daily wing op-

erations and would be responsive to other initiatives the wing commander might want to pursue. However, if the matrix wing were institutionalized at the numbered air force level, then new leadership could easily be in-briefed on the program, with the implicit expectation that this program is the new normal across the command.

Benefits

The benefits of implementing a matrix structure for managing key processes, if properly accomplished, will significantly outweigh negative offsets.

Relative Ease of Implementation

In a normal wing, key processes could be identified, operations teams formed, and oversight mechanisms put in place in only a few months. No prerequisite training in process-management methodologies would be required. Comparison of the proposed structure to the seven-year AFSO21 implementation plan makes obvious the benefit of keeping personnel focused on the mission and not on auxiliary training.

Strong Alignment with Critical Success Factors of AFSO21

The AFSO21 playbook specifies three critical success factors: (1) “Results oriented,” (2) “Total Air Force involvement” that changes the mind-set “to continually [seek] the best way [to] accomplish daily work,” and (3) “Sustained and deliberate application . . . ultimately, embedded in our culture.”²¹ Implementing and institutionalizing operations teams for key processes constitute a simple and elegant improvement in all three areas.

Total Process Management

As the teams get to know each other and see how their processes work across functional lines from start to finish, the insights from that holistic analysis alone will normally lead to immediate process improvements. After the complete process is better understood, commonsense improvements that identify suboptimization, eliminate unnecessary or duplicate effort, and better manage process flow will become evident.

Mission Focus

Military leaders know that for better morale and performance, everyone in the unit should understand how his or her duties carry out or support the mission. Key process members should be able to make that association clearly and see the results of their work reflected in better mission accomplishment.

Empowerment, Teamwork, and Motivation

Seeing linkage to the mission is an excellent motivator, and that motivation is increased when empowerment and teamwork allow team members to make a difference

in that mission. As the teams start to see improvements from their effort, that success will reinforce the value of their empowerment and teamwork.

Better Responsiveness

The responsiveness and greater adaptability of matrix teams have been well documented.²² These qualities will serve the Air Force well because its key processes are affected negatively by reduced manpower and budgets, as well as positively by the potential of new processes and technologies. For instance, technology as simple and ubiquitous as social media can be more quickly assessed for utility and custom tailored to a process. Further, more complex technologies and advances in methodologies can be better evaluated for applicability and impact across the key process, reducing the risk of suboptimal implementation of technology that may improve a component function of the process but at little or no improvement to the process overall. This tendency for suboptimized point solutions is a common manifestation of hierarchical organizations. Part of the oversight mechanism set up by the wing should be the ability to accelerate recommendations for significant new policy and procedures that would require regulatory, policy, or procedural changes, using AFSO21 procedures.

More Leadership Opportunity

The officer put into a team-leader position will soon find that his or her collaborative leadership skills across multiple disciplines will be put to the test and refined much more so than would be the case by overseeing a functional group. Consequently, that officer will gain a better understanding of the other disciplines.

Innovation and Initiative

A companion concept to CPI is innovation. Both deliver better results—CPI in an incremental manner, innovation in a more transformational way. The Air Force thrives on high-technology innovation, but process innovation is often overlooked, and the hierarchical structure makes comprehensive process innovation more difficult because of fiefdoms, stovepiping, and organizational inertia. Operations teams would help implement an innovation-friendly environment for the key processes where new ideas and initiative should thrive. We do not fully tap the potential of our personnel by urging them to use the suggestion box; rather, we should encourage and empower them to directly improve their key processes as part of an operations team.

Part of that team environment is the diversity of thought brought to the team by the different functional experts, again setting up the team for innovative solutions. Gen Mark A. Welsh III, the former Air Force chief of staff, placed major emphasis on diversity as a means of implementing innovation.²³

The Matrix Wing in Practice

The matrix wing concept was applied to the 374th Airlift Wing at Yokota Air Base, Japan, in 1997–98. In addition to conducting its operational missions, the wing was

also fully in charge of maintaining the base and all of its support functions for 40 tenant organizations and the base population of 12,300 people. The wing put 150 personnel into operations teams for its 26 key processes and set up an operations council headed by the vice-wing and group commanders. The council provided oversight and support across the teams, ensuring strategic alignment with wing and higher headquarters goals/policies and determining optimal funding distribution and resource allocation among the key processes. Commanders retained functional oversight and management while the operations teams were given process management leadership. After only six months, significant process improvements generated by the operations teams became evident.

The greatest gains occurred in functions that spanned the logistics group, in which the operations teams used the action workout procedure to determine process improvements. Because of the scope of the results, the DOD's director of quality management sent a certified public accountant to Yokota to verify the claims. The CPA validated that improving the overhaul process for 40,000-pound aircraft cargo loaders "resulted in saving \$93,509 per loader, while reducing the overhaul cycle time from 15 to 2 months" and that restructuring repair processes for C-130 aircraft engines reduced "repair cycle time from 66 to 19 days, and [produced] cost savings of \$171,000 per engine."²⁴

As another example, key process 4.4 promoted community relations, an extremely consequential focus area since Yokota was tightly surrounded by 11 townships and prefectures, most of which were antagonistic to the presence of the base. The operations team implemented several novel solutions: establishing a vice-mayors council that would meet quarterly to inform key Japanese officials of the wing's mission, listen to their concerns, and find ways to partner with them in common areas such as firefighting and managing quiet hours; opening the base to a historical walking tour that let the local community see many of the Japanese monuments on the base; organizing joint concerts between Japanese military bands and the Air Force Band of the Pacific; and coordinating a weekly informational broadcast with an estimated listening audience of well over 10,000 Japanese across the Tokyo area, hosted by the wing commander to inform the audience of the services offered by Yokota. These public relations initiatives brought together functions from all four groups and the wing staff agencies. Because of these efforts, several of the most adversarial mayors became supporters in that time frame.

Feedback from the operations teams was very positive, and several of the recommendations in this article are based on lessons learned from that prototype implementation. These and other process improvements, combined with implementation of the matrix wing concept, led to the 374th Airlift Wing receiving the President's Quality Improvement Award—one of eight DOD agencies to receive it in 1998.

Conclusion

The thrust for improving how our military conducts its business is inescapable; it is the mandate that changing conditions and diminishing resources impose on any organization that seeks to stay relevant and productive. For the military, productivity

is the ability to conduct the mission, and until the Air Force successfully institutionalizes CPI and innovation in operational units, the shaft of the spear may remain strong, but the point can become brittle. The key to implementing continuous improvement in Air Force wings entails removing restraints endemic in the hierarchical structure and empowering operations teams to run their key processes, all the while maintaining focus on the mission and teamwork rather than on management methodologies. The matrix wing concept leverages the inherent qualities of our military culture, removes obstacles to effectiveness imposed by a hierarchical structure, and bestows true leadership and empowerment on the teams. With minimal cost in time, effort, and funding, it is a solution ready to meet current and future challenges. ✪

Notes

1. Department of the Air Force, *Air Force Smart Operations for the 21st Century (AFSO21) Playbook*, version 2.1 (Washington, DC: Department of the Air Force, May 2008), A-1 (“Section One: Executive Summary”), http://www.au.af.mil/au/awc/awcgate/af/afd-090327-040_afso21-playbook.pdf.
2. Ibid.
3. Lt Col Graham W. “Gray” Rinehart, USAF, Retired, “How the Air Force Embraced ‘Partial Quality’ (and Avoiding Similar Mistakes in New Endeavors),” *Air and Space Power Journal* 20, no. 4 (Winter 2006): 35, <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj06/win06/win06.pdf>.
4. Gen Martin E. Dempsey, “America’s Military—A Profession of Arms,” white paper (Washington, DC: Department of Defense, [2012]), <http://www.jcs.mil/Portals/36/Documents/Publications/aprofessionofarms.pdf>.
5. Periodic training in social elements that affect unit effectiveness (e.g., sexual harassment and assault, workplace harassment and discrimination, and drug and alcohol abuse) should be considered as a requirement that directly supports the mission by maintaining good order and discipline.
6. Indirect support would include taking care of our people, budgeting, managing resources, and other essential elements of our American concept of military operations.
7. Mission accomplishment would include all of the core functional areas represented by specialty codes.
8. Dempsey, “America’s Military.”
9. When the 374th Airlift Wing at Yokota Air Base, Japan, implemented a matrix wing structure, the executive committee identified 26 key processes that fell under the following key result areas: 1.0 Mission Ready Forces and Equipment, 2.0 Base Operating Support, 3.0 Quality of Life, and 4.0 Host Nation Military and Local Community Relations.
10. Department of the Air Force, *Air Force Smart Operations*.
11. Christopher A. Bartlett and Sumantra Ghoshal, “Matrix Management: Not a Structure, a Frame of Mind,” *Harvard Business Review*, July–August 1990, <https://hbr.org/1990/07/matrix-management-not-a-structure-a-frame-of-mind>; Ruth Malloy, “Managing Effectively in a Matrix,” *Harvard Business Review*, 10 August 2012, <https://hbr.org/2012/08/become-a-stronger-matrix-leade/>; and Gill Corkindale, “Surviving Matrix Management,” *Harvard Business Review*, 19 June 2008, <https://hbr.org/2008/06/surviving-matrix-management>.
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13. Malloy, “Managing Effectively.”
14. Bartlett and Ghoshal, “Matrix Management.”
15. Ibid.
16. Department of the Air Force, *Air Force Smart Operations*.
17. Bartlett and Ghoshal, “Matrix Management.”
18. Malloy, “Managing Effectively.”
19. Corkindale, “Surviving Matrix Management.”
20. Stanley M. Davis and Paul R. Lawrence, “Problems of Matrix Organizations,” *Harvard Business Review*, May 1978, <https://hbr.org/1978/05/problems-of-matrix-organizations>.

Briding

21. Department of the Air Force, *Air Force Smart Operations, A-1–A-2* (see sec. 2.2.)
22. Davis and Lawrence, “Problems of Matrix Organizations.”
23. Gen Mark A. Welsh, “Perspective,” US Air Force, accessed 12 May 2016, <http://www.af.mil/diversity.aspx>.
24. Director Anne O'Connor (DOD Quality Management Office), official correspondence with the wing commander, 2001.



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