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Total Force Fitness in Units Part 1: Military Demand-Resource Model

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ABSTRACT The military unit is a critical center of gravity in the military's efforts to enhance resilience and the health of the force. The purpose of this article is to augment the military's Total Force Fitness (TFF) guidance with a framework of TFF in units. The framework is based on a Military Demand-Resource model that highlights the dynamic interactions across demands, resources, and outcomes. A joint team of subject-matter experts identified key variables representing unit fitness demands, resources, and outcomes. The resulting framework informs and supports leaders, support agencies, and enterprise efforts to strengthen TFF in units by (1) identifying TFF unit variables aligned with current evidence and operational practices, (2) standardizing communication about TFF in units across the Department of Defense enterprise in a variety of military organizational contexts, (3) improving current resources including evidence-based actions for leaders, (4) identifying and addressing of gaps, and (5) directing future research for enhancing TFF in units. These goals are intended to inform and enhance Service efforts to develop Service-specific TFF models, as well as provide the conceptual foundation for a follow-on article about TFF metrics for units.

INTRODUCTION

The Chairman of the Joint Chiefs of Staff released guidance for the U.S. Department of Defense's (DoD's) approach to readiness and force preservation in 2011.[1] A fundamental change underlying this guidance involved extending the concept of "fitness" to include body, mind, social, and spiritual domains, creating a more comprehensive and holistic concept known as "Total Force Fitness" (TFF).[2] The TFF concept provides a common framework to support and integrate Joint- and Service-specific efforts that seek to advance prevention and health promotion, enhance the resilience of Service personnel and improve effectiveness and efficiency of the force. The TFF framework identifies 8 mind–body domains: physical, nutritional, medical, environmental, spiritual, psychological, social, and behavioral.[2] These eight domains are all important and require attention from unit leaders to ensure TFF of units, an essential factor in force readiness and preservation.

The TFF framework places the individual at the center of the eight TFF domains and identifies the critical influence of the family, organization, and environment (see Fig. 1). This framework assumes that family, organizational and environmental factors have a significant impact on individual fitness. The model also assumes that individual fitness has an important reciprocal relationship with fitness of larger social structures (e.g., family, unit, community, and enterprise). This assumption is not surprising, given that military culture emphasizes the primacy of the group rather than individuals.[3–5]

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FIGURE 1. TFF model.[1]

The military unit is defined as a group of individuals that are part of a complex social system oriented around a common mission and identity.[6,7] Unit complexity is a function of being "embedded in a larger multilevel (individual, team, organization) system."[6] In addition, unit complexity also includes dynamic processes in which units develop as members interact over time and as units adapt to emerging demands.[6] These processes serve to preserve an organized group that can function well-together.

This article focuses on the TFF of units, which is a product of unit characteristics defined earlier and the fitness levels of individual members that impact the overall resilience and performance of the unit. An Army or Marine battalion, Air Force squadron or Navy task element or their equivalents were chosen as the prototypical unit to help focus the framework and to illustrate its application. Fitness at the unit level is particularly important, given that units, and not individuals, accomplish military missions and tasks. To that end, this article builds on the TFF framework by advancing a conceptual model of TFF in units.

The proposed model is grounded on the Military Demand-Resource (MDR) systems model that highlights the key demands, resources, and outcomes that influence the psychological fitness of the force.[8] Before describing the model of unit TFF, this article provides a brief overview of the MDR model, followed by a description of the methodological approach to identify the key demands, resources, and outcomes influencing TFF in units.

MILITARY DEMAND-RESOURCE MODEL

The MDR model is a systems-based framework that identifies key demands and resources thought to influence psychological fitness end states.[8] The model draws on two empirically supported demand-resource models: (1) the Conservation of Resources (COR) model developed in studies involving community responses to traumatic events[9] and (2) the Job Demand-Resource (JDR) model developed in organizational studies of burnout, job stress, and job performance.[10]

The MDR model emphasizes the central role of resources in military units consistent with the COR and JDR models. Resources include tangible properties (e.g., material and immaterial aspects of the group) that are valued by the unit or that facilitate attainment of these properties, either instrumentally or symbolically.[9] The COR model identifies the following processes of individual adaptation to stressors: (1) Stressor appraisal: units are threatened by the potential or actual loss of valued resources, (2) Coping processes: units strive to retain, protect, and build resources strive to minimize net loss of resources when confronted by stress and, (3) Outcomes: units experience increased well-being associated with protecting and gaining resources and decreased well-being associated with losing resources.[9] The model also stresses the importance of units having resources that are adequate to address demands in a sustainable manner for maintaining optimal functioning and well-being.

The MDR model includes four primary components that identify: (1) demands placed on the unit, (2) outcomes associated with a unit's fitness (e.g., performance and resilience), (3) resources that mitigate the impact of demands on the outcomes, and (4) feedback loops that account for interactions among factors and time, especially with regard to balancing demands and resources. Figure 2 illustrates the general form of the model.

Demands

Unit demands include aspects of the operational and nonoperational military environment that absorb physical, psychological, social, and spiritual resources.[10] Resources are required to deal with the increased risk of failure created by the demands to achieve desired outcomes. In the process of unit fitness, demands are any factors that require unit resources but do not necessarily outweigh resources or impose stress. In contrast, stressors can be conceptualized as a perception that there are inadequate resources to meet demands. Types of demands can include the amount and speed of information and tasks, routine and nonroutine roles and responsibilities, necessity for quick and accurate decisions, and personal life events for unit members. Demands can have positive- or negative-impacts on individual and/or unit functioning. Demands can also be episodic (e.g., exposure to real risk of serious injury or the aftermath of violence, or traumatic loss) and/or chronic (e.g., repeated long work days and limited time for rest, or extended sense of powerlessness). Thus, demands can emerge from the accumulation of daily hassles and/or major life events. Moreover, demands can be associated with combat and/or operational characteristics (e.g., mission complexity) as well as noncombat and nonoperational characteristics (e.g., personal and family demands). Finally, demands may be interrelated and/or jointly interact to impact both resources and outcomes. For example, ambiguity

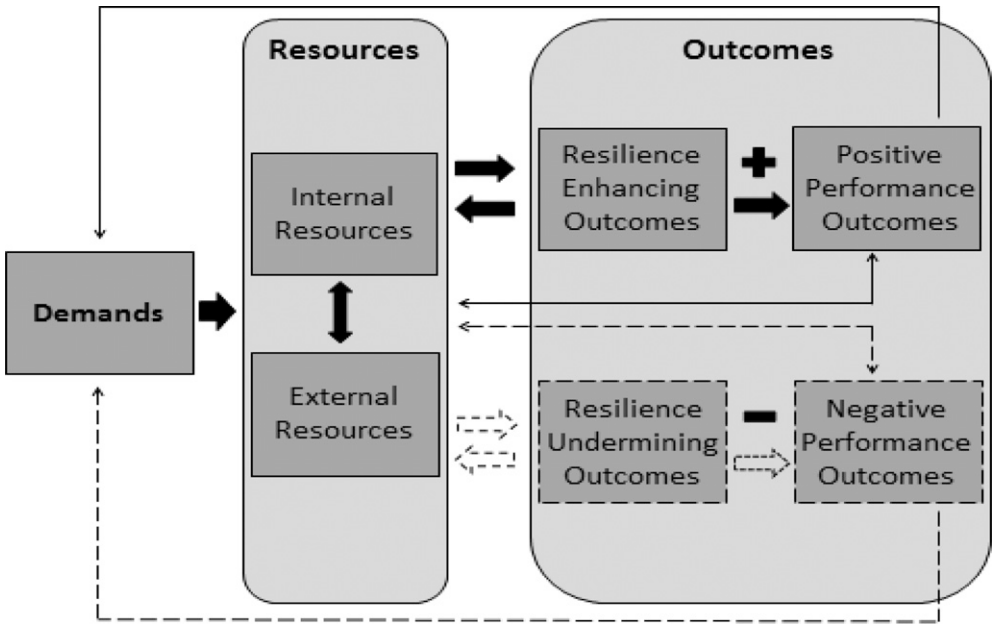

FIGURE 2. Military demand-resource model.[8]

with regard to the operational roles/responsibilities for an individual and/or their unit could lead to a perceived lack of control and autonomy over roles and responsibilities.

Resources

Resources can be used to enable mission accomplishment and/or to mitigate the negative impacts of demands on unit outcomes.[10] Resources can encompass any of theeight TFF domains that function to enhance resilience and performance, especially those from the physical, psychological, spiritual, and social domains.[10] Resources can be either internal or external to the unit, depending on whether viewed through an individual or group perspective. Internal resources include capabilities of the unit as well as the individual members; examples of internal resources at the individual level include metacognitive awareness, appraisal and coping strategies, and engagement.[8] External resources, on the other hand, include a range of social and environmental factors outside of the unit that may impact unit fitness. In the overall model, both internal and external resources are the central mediating and moderating variables.

Outcomes

Outcomes can be divided into two categories: those related to resilience and those related to performance. Resilient outcomes include variables such as burnout, well-being, mental health status, drug and alcohol use/abuse, and marital and family stability. Performance outcomes include variables like job and task performance, organizational citizenship behaviors, and indiscipline behaviors.[8]

The MDR model is designed to be a heuristic framework for understanding the roles of military-related demands and resources. The model's generic terms and parsimony are intended to facilitate dialogue across leadership and support agencies and to be applied across multiple contexts (e.g., different Services and missions, and different social groups including units, families, and communities) and levels (e.g., groups, units, and enterprises). In addition, the logical flow of inputs, mediators/moderators, and outputs is intended to mirror military operational planning and feedback processes, as well as allow for analyses that start with demands or are reverse engineered from desired outcomes. The MDR model also recognizes value in conceptualizing the full range of demands and mobilizing a broad set of resources. Associated activities include proactively building and restoring resources, recognizing early when demands may exceed resources and understanding feedback loops, and short-and long-term tradeoffs of how resources are used and restored. The model's primary benefit is identification of a conceptual space from which guidelines can be drawn for unit commanders to apply in improving unit fitness.

CONCEPTUALIZING UNIT FITNESS

The unit fitness concept builds on previous guidance and literature about TFF. The Chairman of the Joint Chiefs of Staff Instruction for TFF states that "a total force that has achieved total fitness is healthy, ready, and resilient, capable of meeting challenges and surviving threats."[1] In addition, fitness can be conceptualized as the abilities and capacities to optimize performance (ability to complete tasks effectively and efficiently) and strengthen resilience (ability to withstand, recover, adapt, and grow under challenging circumstances).[8] The resilience in the fitness of the force, which is directly applicable to units, is also emphasized by

the Quadrennial Review in the following way: "Though the force has remained incredibly resilient over the course of eight years of war, we must prioritize programs that sustain resiliency .... By emphasizing the emotional, social, spiritual, and family aspects of fitness, these health-of-the-force investments will pay dividends in national security today and well into the future."[11]

It is also important to consider that this article identifies multiple factors that impact the fitness of a unit and multiple ways to measure the fitness in terms of performance and resilience. Therefore, an evaluation of fitness is partially context specific because the same unit that may be very effective at combat operations may not be as effective at the end of a deployment or during reintegration. The main value of assessing fitness is to provide leadership with immediate feedback about unit fitness in relation to a specific context defined by demands, resources, and desired outcomes.

The TFF framework also identifies eight mind–body domains, one of which is social fitness. Social fitness is a critical domain because it is one of the most robust resilience factors, especially in military units.[12] Social fitness can be extended to include unit, family, peer, and community fitness. The social fitness of the unit is a signature feature of military culture and operational success because people, especially as a unit, are the key source of combat effectiveness.

To be consistent with current DoD guidance,[1] TFF of units is conceptualized in terms of healthy relationships among people and teams that contribute to optimal unit well-being, resilience, and performance. The following assumptions buttress this definition of unit fitness:

(1) The nature and quality of relationships among members of a group underlie social fitness.
(2) TFF in units results from group dynamics that involve both attitudinal and behavioral components.
(3) Unit members are in the best position to connect with and support one another because units are organized by common tasks and spend significant amounts of time working together.
(4) Leaders play a vital role in recognizing, supporting, strengthening, and monitoring relations among unit members.
(5) Unit-level resilience is synergistically greater than the sum of unit members' individual resilience.

The proposed model of TFF in units augments the military's TFF framework by further specifying key demands, resources, and outcomes that are proposed to influence fitness at a higher level of analysis, such as the unit level. This model also seeks to generate a conceptual framework that is evidence based, operationally grounded, and actionable. The framework draws from the MDR systems model, and highlights dynamic interaction among demands, resources, and outcomes that affect units.

The model includes general categories of variables for each MDR component. These categories serve as a representative list of evidence-informed factors that theoretically have relevance across a broad range of operational contexts. Variables identified within each category are not intended to be exhaustive. In addition, the model is intended to provide a flexible framework that can be tailored to unique contexts (e.g., mission and geopolitical). The research methodology used to identify key demands, resources, and outcomes associated with TFF in units is described below.

Method

A joint interdisciplinary team of subject matter experts (SMEs) was formed into a study team. The team included military SMEs from each of the Service academies, the National Defense University, and selected civilian academics with unique and important knowledge areas and expertise. Most members of the research team, with the exception of academicians, had experience as military leaders, completed doctoral level training in disciplines within the behavioral and social sciences and had teaching expertise in both leadership and unit functioning. Our approach to model development was organized into 3 phases that focused on (1) initial concept analysis and development, (2) conference workshop with operational leaders, and (3) synthesis and integration of key variables with strongest empirical support.

Initial Concept Analysis and Development Process

The joint team of coauthors started the concept analysis and development process by meeting to discuss unit fitness from the perspective of each military department to ensure the article accounted for the unique missions and cultures of the respective Services. This process was also informed by focused literature reviews and internet searches on topics related to unit TFF conducted on November 2010 to January 2011 performed by a contract support team. Keywords and search terms included Air Force, Army, Battle, Bond, Cohesion, Collective, Combat*, Commun* and Style, Connectedness, Connective*, Coping, Defense, Degree of Consensus, DoD, Duration, Fear of Shame, Flexib*, Force Sustainment, Group, Group Dynamics, Group, Heterogeneity, Group Purpose, Group Size, Harmony, Leader*, Leader* Style/Type, Marine, Military, Military and Social, Military Fitness, Military Leader*, Military, Readiness, Military*, Mission, Mission Essential Skills, Model, Navy, Operation*, Optim*, Peer, Performance, Readiness, Relation*, Requirement*, Reserv*, Service Member*, Shared, Skill*, Soci*, Social Facts, Social Fitness, Social Norms, Soldier, Solidarity, Special Op*, Sports Performance, Task, Troop, Turnover, Unit, Unit Health, Unit Psych*, Unit Readiness, Unity, Veteran*, and War.* Databases searched included Armed Forces Medical Library, PubMed, Defense Technical Information Center Online, and Google Scholar. In addition, general internet searches were performed using Google and specific military branch Web sites and related organizational Web sites. Article relevancy was based on the ability to show additional knowledge of the

importance of unit fitness. At the conclusion of this phase, a draft white paper was developed to integrate inputs and findings from the independent review of the literature by both the contract support team and the joint team in support of a presentation at the 2012 Warrior Resilience Conference described below.

Conference Workshop With Operational Leaders

A conference workshop with operation leaders participating in the 2012 Warrior Resilience Conference was conducted with operational leaders outside of the team to iteratively refine the model and ensure it addressed operationally relevant issues and perspectives. As part of this process, a presentation describing the model was delivered at the DoD's 2012 Warrior Resilience Conference and served to inform small group discussion conducted with a breakout group of officer and enlisted line participants from the conference. The breakout group included a total of 14 military SMEs. This sample included representation from the Army and Air Force (8 and 6 individuals, respectively), senior grade officer and enlisted personnel (10 and 4, respectively), as well as active and reserve component personnel (10 and 4, respectively). In addition, a review by Marine Corps combat development staff was also coordinated because it was not possible to include Marine Corps coauthors, and Marine Corps-specific inputs were considered an essential part of a framework intended to support each Service's efforts. The conference workshop was designed to obtain individualized feedback to a set of specific questions and to facilitate a focused discussion around a set of open-ended questions. The topics of the specific questions focused on unit fitness outcomes (e.g., cohesion, morale, respect, and trust) and factors that lead to those outcomes (e.g., leadership and communication). Table I includes sample questions that were used to elicit input and feedback from conference workshop participants.

Synthesis and Integration of Evidence for Model Development

Input obtained from the independent literature search conducted by the contract support team and augmented by the joint team, and input solicited via the conference workshop session were reviewed by the joint team to identify key variables, and assess the quality of theoretical, methodological, operational, and empirical evidence to substantiate the unit fitness model. The literature review mixed levels of evidence for factors associated with unit fitness outcomes, and limited integration of unit factors affecting TFF to incorporate into our unit fitness model. Accordingly, the joint team then reviewed and enhanced the proposed model and subdomains, based on additional focused literature reviews and conceptual analyses. As part of the overall process, the joint team also divided into subteams to focus on specific sections of the article. Central activities included researching the subdomains and answering a series of questions about each subdomain: what is it; what is its relationship to unit fitness; and how can it be enhanced. The joint team organized their findings in terms of a provisional model that incorporates the demands, resources, and outcomes at the unit level, and includes 5 unit factors that are central to unit fitness.

TABLE I. Sample Questions From Workshop With Line Leaders

1. Identifying and ranking different constructs that are important to unit fitness
2. Discussing the relationship between unit fitness subdomains, especially in relationship to leadership
3. Identifying and ranking different outcomes measures for assessing perceived and real conditions within unit
4. Identifying the top operational leader actions for building each of the unit fitness subdomains

MODEL OF TFF IN UNITS

The model of TFF in units includes the four primary components outlined in the MDR model: (1) demands placed on the unit, (2) outcomes that indicate the unit's fitness (e.g., performance and resilience), (3) resources and, (4) feedback loops for interactions across factors and time, especially balance of demands and resources. For the purposes of illustration, the article conceptualized the unit as the battalion, squadron or task element because this level of unit integrates functions across 100 to 1,200 personnel whose functions can span the full range of the military operational spectrum and can include command across branches or specialties. Figure 3 illustrates key variables underlying fitness in these types of units.

DEMANDS

The unit fitness model identifies demands based on previous lists from the literature[13,14] and operational guidance such as the Quadrennial Defense Review.[11] The categories of demands represent trends that are perceived as being most significant for units and are expected to increase in future warfare. These trends include the following:

(1) Continued full spectrum of operations that includes asymmetrical/irregular warfare and military operations other than war.
(2) Increased complexity and uncertainty associated with multinational alliances, nonstate actors, and continuation of full spectrum of operations.
(3) Increased responsibility at lower levels and reliance on small team activities.
(4) Increased speed and complexity of operations associated with evolving and accelerating technologies and information systems.
(5) Increased information processing and sharing demands on teams and individuals associated with increased complexity, uncertainty, increased speed, and complexity of operations.

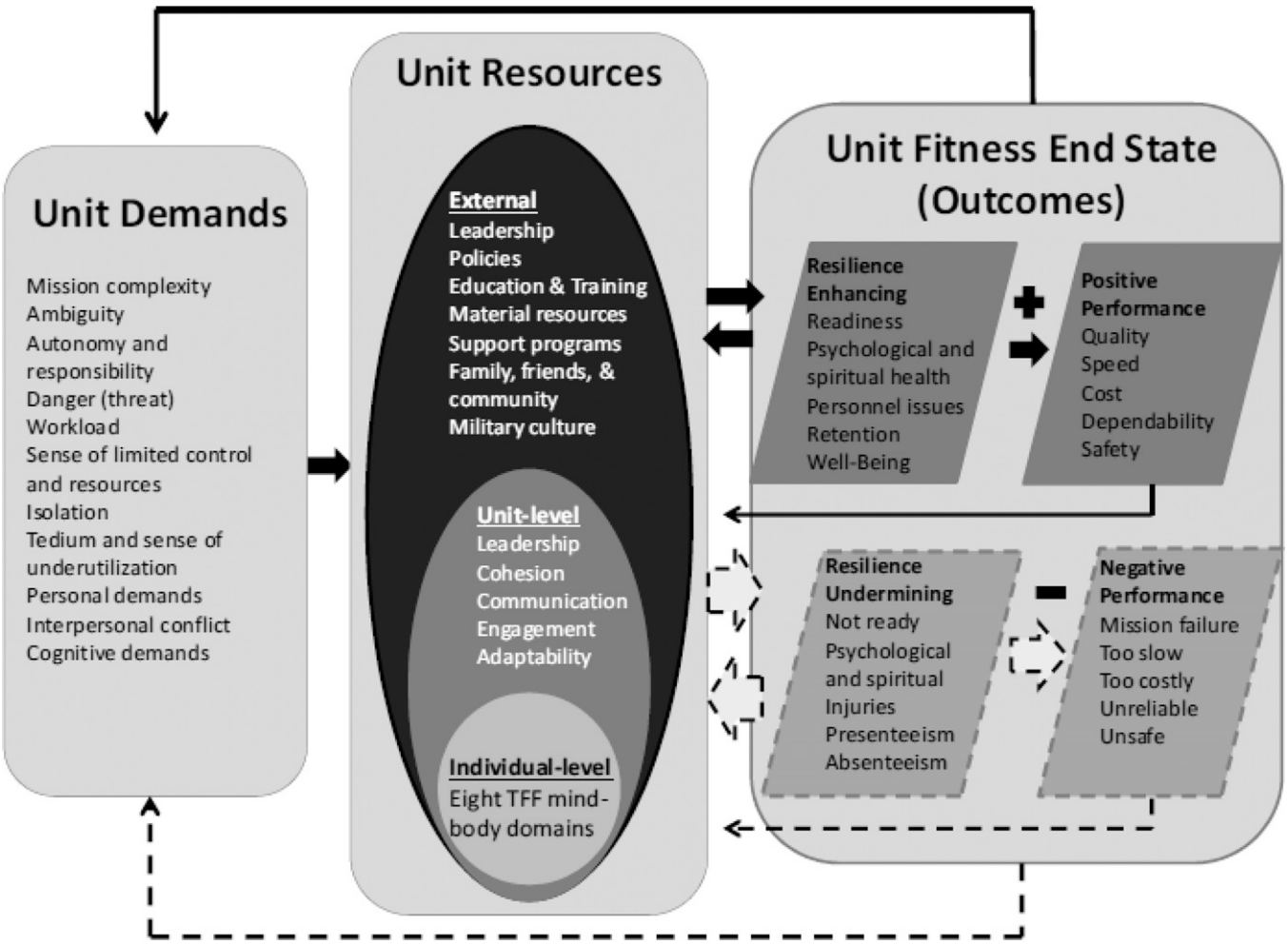

FIGURE 3. Model of TFF in units.

(6) Continued high demands on the Total Force including active duty members, National Guard and Reserve members, family members, and greater community.

As shown in Table II, unit demands can include factors within the operational and nonoperational military environment that require physical, psychological, social, and spiritual resources.[10] The demands vary in severity depending on the situation. The severity of a demand is also partly based on the perception and judgments of unit members affected by them.

These demands inform the type of unit resources, both internal and external, that are needed to effectively accomplish the mission. Many of these demands can be assessed objectively and subjectively. In addition, these demands can exist within and across multiple levels of individuals, units, and systems.

Units are at increased risk for a range of adverse outcomes when demands exceed available resources. When militaries have vast capabilities and proven-track records, it can be overlooked that units can be challenged by exceptionally high demands or the accumulation of multiple demands. The potential adverse outcomes include, but are not limited to, impaired decisions and performance, impaired relationships, decreased unit cohesion and morale, refusal to show up for work or fully participate in work, burnout, depression, substance abuse, suicidal behaviors, interpersonal violence, and other forms of indiscipline and illegal behavior. Moreover, when adverse outcomes occur, they typically impose additional demands on the unit.

Maintenance of a healthy balance between demands and resources is an important element of unit fitness. This concern is highlighted by recent DoD climate surveys that indicate an increasing concern for levels of resources to manage demands.[15,16] In addition, it is likely that the military will experience decreased resources, given budget efficiencies and efforts to downsize, at a time when the military needs to proactively equip units to improve total fitness and to be prepared to handle demands now and in the future that place a high level of stress on the unit. Imbalances of high demands with inadequate resources can apply to both leaders and unit members. One consequence is having less discretionary time

TABLE II. Unit Demand Categories[11,13,14]

Demand	Characteristics
Mission Complexity	• Range of operations from humanitarian, peacekeeping, counter-insurgency, and counterterrorism, to full combat • Asymmetric warfare • Joint and multinational operations • Matrixed organizations
Ambiguity	• Unclear or changing mission • Unclear roles for individuals or units • Unclear rules of engagement • Unclear command or leadership structure • Unclear norms or standards of behavior
Autonomy and Responsibility at Lower Levels	• Less manpower available to cover broad regions • Diffusion of mission demands to small teams and junior leaders
Danger (Threat)	Real risk of serious injury or death, from: • Enemy small arms fire, mortars, mines, explosive devices, etc. • Accidents, including "friendly fire" • Disease, infection, environmental toxins • Working with and potential exposure to chemical, biological, radiological, and nuclear materials
Workload	• Frequency, duration, and pace of deployments • Long work hours during deployments • Long work hours in periods before and after deployments • Increased speed/rate of information transfer • Increased workload coupled with decreased resources
Sense of Limited Control and Resources	• Perception of inadequate resources to meet demands • Movement restrictions • Rules of engagement constraints on response options • Policies that prevent intervening and/or providing help • Unresponsive supply chain (e.g., trouble getting needed supplies and repair parts) • Differing standards of pay, movement, behavior, etc., for different units in one area • Indeterminate deployment length (e.g., not knowing when returning home) • Inability to know or influence what is happening with family back home
Feeling of Social and/or Physical Isolation (During Deployments)	• Remote location • Immersion in foreign culture and language • Distance from family and friends • Unreliable communication tools • Reservists and individual augmentees feeling disconnected from unit to which they are attached
Tedium and/or Underutilization of Strengths	• Long periods of repetitive work activities without variety • Lack of work that can be construed as meaningful or important • Overall mission or purpose not understood as worthwhile or important • Few options for recreation and entertainment
Personal Demands	• Range of demands associated with the unique professional and personal experiences of unit members (e.g., relationship and financial problems, legal problems, and disciplinary issues)
Interpersonal/Intergroup Conflict	• Conflict among unit members, which can create a stressful environment and place individual stress on unit members • Sexual harassment • Discrimination • Bullying • Hazing
Cognitive Demands	• Quantity and rate of information flow • Challenges with sharing information, including classification protocols • Attention • Awareness of environment • Continuous 24/7 operations • Continuous 24/7 connectivity, including social media proliferation • Rate of and changes in information flow • Pace of operations on battlefield and within organizations • Rate of organizational change • Amount and rate of information flow associated with shift from platform-centric to network-centric warfare

and energy for any one area, including maintenance of fitness on a unit and an individual level. A central theme is that all demands are associated with resource costs and trade-offs in some form.

INTERNAL RESOURCES

Resources include physical, psychological, social, or organizational factors that facilitate or enhance resilience and performance.[10] Resources can be both internal and external based on the level of analysis (e.g., individual or group). Social identification with the group (e.g., depersonalization, ideal group member) establishes the cognitive link between individual and group and leads to processes and attitudes that contribute to group formation (e.g., unit internal resources).[17–19] Internal resources reside within the unit (e.g., capabilities of the unit as well as the individual members), whereas external resources include a range of social and environmental factors outside of the unit that support unit fitness. The primary internal resources of a unit include leadership, communication, cohesion, engagement, and adaptability. These resources can be conceptualized as either processes or attitudes as summarized in Table III. Attitudes include how people think and feel about specific topics (e.g., fellow unit members, unit tasks, and change) as well as their motivation related to those areas. Processes represent how unit members work together to accomplish tasks and support each other.

The following descriptions include a definition of each subdomain and a high-level summary of the empirical evidence for how these internal resources relate to unit fitness outcomes and how they can be improved. The unit TFF model presumes that these internal resources overlap and interact in important ways, but descriptions of these relationships are beyond the scope of this article.

Leadership Subdomain

Consistent with military leadership doctrine,[20–23] leadership is defined as a dynamic and adaptive process that influences people to accomplish missions and to strengthen and protect the organization.[24] Leadership is central to unit fitness because of the need for deciding, directing, organizing, and controlling in military operations. A central intent of this influence process is to achieve common commitment to a set of beliefs, actions, or outcomes.

TABLE III. Unit Internal Resources

Internal Resource	Definition
Leadership	Process of influencing unit members to accomplish missions and uphold the organization
Communication	Process of sharing mission-relevant task and supportive information among unit members
Cohesion	Attitude of solidarity among individuals in a group and among groups in a unit
Engagement	Attitude of personal investment and sense of fulfillment in achieving the unit's goals
Adaptability	Process of being able to adjust to meet changing situations

Collective leadership is the combined effect across leaders that seeks to align efforts toward a common purpose within and across units. Unit commanders have overall authority and responsibility, although subordinate leaders have nested and specialized responsibilities. When influence is synchronized vertically and horizontally in a unit, collective leadership will be a greater catalyst and have greater integrative qualities. In addition, emergent leadership occurs when individuals who have not been formally assigned as leaders exercise successful influence in a group.[25] When collective leadership does not occur or not aligned, complications are likely to arise creating additional demands.

Unit's leaders are responsible to prepare, sustain, and grow operational capability, generally called resilience, and to achieve performance outcomes. Unit leaders are responsible for balancing all eight mind–body domains of TFF for individuals, their families, and their organizations.[1] A leader also applies influence to some external resources and to all internal resources. The effectiveness of leadership will vary by how leaders approach addressing people, the work, and the situation.[26–29] The best leaders achieve mission outcomes although taking care of individuals and the unit.

Impact of Leadership on Unit TFF Outcomes

Evidence supports positive relationships between military leadership and unit TFF outcomes. For example, strong relationships exist between unit member resilience and unit leaders who are seen as effective in achieving desired performance outcomes.[30–33] Positive leadership actions can "buffer" stress from combat exposure.[34] Resilience, care for Service members and the creation of positive climates are ways that effective leaders balance the welfare of Service members with mission demands.

Military leadership also affects unit social climate and unit member well-being.[35] In turn, a supportive unit climate has a positive effect on employee outcomes, and is mediated by the workers' psychological capital (e.g., hope, resilience, optimism, and efficacy). The quality of leaders' values, standards, role modeling, and generating of positive climates are related to leader effectiveness.[30]

The 360-degree ratings (i.e., performance feedback from multiple different sources who can include subordinates, peers, and superiors) of commander behaviors correspond to ratings of long-term potential, competence, and overall performance.[36] Subordinate ratings of leaders' actions are related to outcome ratings by the leaders' superiors.[37] Differences in the aggregate ratings of these individual assessments relate to unit-level outcomes. For example data collected during realistic operations at the National Training Center show those ratings of platoon leaders' behavior are strongly correlated with unit effectiveness ratings.[38] Similar to individual-level measures, team-level measures of transformational and transactional leadership positively predicted performance.[32,38]

Using Leadership to Improve Unit TFF Outcomes

Studies suggest that leadership can be improved, affecting unit TFF through purposeful attention to prosocial attitudes, supportive behaviors, role modeling, self-awareness, and leadership instruction. Unselfish leaders, who focus more on the success of others than their own, are associated with higher unit performance and effectiveness ratings.[39] In contrast, "toxic" leaders act in a way dominated by selfishness and self-promotion,[22,30,39] which can engender subordinate turnover, malingering, insubordination, and intentional damage.[40,41] Toxic leaders display destructive behaviors that deteriorate their followers' morale, motivation, and self-esteem.[42]

Leaders, who engage in a full range of desired leadership competencies, achieve desired outcomes including earning unit members' and superiors' trust, higher morale, mission accomplishment, and improving individuals' work capabilities and leadership skills.[27] The set of leadership competencies include effective use of influence, setting good examples, communicating clear intent and purpose, extending influence by building trust with key parties beyond the unit, setting a positive command climate of teamwork and cohesion, facilitating ongoing development of others, preparing self by learning and creating new knowledge, and managing results through individual consideration and improving performance.

Leader behaviors that support unit members and mitigate stress are associated with a variety of positive unit outcomes including greater satisfaction and organizational commitment, and less deleterious personal stress, less interpersonal conflict, and greater organizational commitment. These support behaviors include keeping unit members engaged in their job,[43] helping with role clarity[44], providing clear expectations for performance, giving Soldiers autonomy over how jobs are done,[45,46] and showing concern and support for unit members' well-being.[47] Likewise, strong advocacy and humble and persistent application of a program matter more than specific leadership improvement programs.[48–50]

Leaders act to impact unit fitness by communicating specific influence messages internal and external to the unit, which in turn has impact on cohesion, engagement, and adaptability.

Communication Subdomain

At its most basic level, communication is defined as the process of transmitting or exchanging information so it is clearly understood.[51] However, communication is far more complex. As articulated by military doctrine, communication is a competency more than the simple transmission of information. Not only must it facilitate understanding between individuals, but it must also increase awareness of issues and solutions. Communication involves conveying thoughts, presenting recommendations, bridging cultural sensitivities, and reaching consensus. Military manuals emphasize the importance of effective communication in a leader's ability to lead, supervise, and build teams, counsel, coach, and mentor.[21,22,52,53] Hence, effective communication could be construed as the vehicle for quality leadership (i.e., how effective leadership is accomplished) or the means used to achieve effective leadership.

Communication can exist in many forms, including explicit, implicit, verbal and nonverbal. For the unit commander, communication is fundamental at three different levels. The first is the interpersonal level, which encompasses transfer of knowledge, performance expectations and feedback, and understanding perception.[54,55] Second is the organizational level, which is essential within the boundaries of the unit to communicate a mission and vision.[56,57] Finally, the strategic level, encompasses all exchanges with individuals and/or organizations outside of the unit (e.g., family members, Family Readiness Groups, community partners, adjacent units, and other stakeholders).[58] Despite its complexity, the process of communication is stable across forms and levels, and may be illustrated as a series of steps: intention, expression, reception, interpretation, and feedback.[59]

Impact of Communication on Unit TFF Outcomes

At the interpersonal level, there is evidence of strong, positive correlations between communication and leadership effectiveness, as well as between communication and cohesion.[60,61] Recent work focusing on communication and resilience also reveals a positive relationship.[62,63]

When there is large consensus among unit members regarding perceptions of unit leadership and the social environment, the quality of the social environment moderates the relationship between work stressors with morale and depression. Results from the Joint Mental Health Advisory Team 7, collected from Afghanistan in 2010, suggested that Service members want clear, concise, and relevant information that defines the mission, provides feedback, and manages organizational boundaries, among other actions.[33] These findings suggest that communication facilitates a positive unit environment that in turn fosters social support to help individuals cope with stressors,[64] and contributing to the resilience of the unit.

Furthermore, perceived quality of internal communication is positively linked to organizational performance, from both objective and subjective standpoints, including productivity, safety, retention, and morale.[65–68]

Using Communication to Improve Unit TFF Outcomes

A new body of research on techniques to improve communication that may lead to increased resilience is emerging. Active and constructive responding, assertive communication, and effective use of praise have been shown to cultivate and maintain healthy relationships that result in increased resilience of both unit personnel as well as family members.[62] Similarly, joint experience of positive events and expression of emotions in such positive circumstances have significant interpersonal and intrapersonal benefits, such as increased well-being, which alone magnifies the benefit of the positive

event.[66,69] High-quality exchanges between unit leaders and members are characterized as "open" communications systems where subordinates are afforded greater freedom of action, inside information, negotiating of latitude, and influence.[70]

Finally, it is critical that leaders understand generational variations regarding communication, including media. Although "Millennials" of this generation do not differ from their older coworkers in their preferences for strong relationships with supervisors, there may be intergenerational differences in which they expect communication to be more frequent and more positive than their older coworkers do, and are significantly more comfortable leveraging technology media.[71,72] Hence, leaders must be cognizant of their availability and accessibility, as well as their amount of personal contact with subordinates and other stakeholders (e.g., family members).[73] Furthermore, effective use of social media is imperative to maximizing effectiveness and efficiency in connecting with a diverse audience.

Cohesion Subdomain

Cohesion among individuals in military units, which is influenced by unit leadership, is conceived as a key enabler of TFF in units. However, cohesion is a complex property of groups that is not easily understood or assessed.[12] Cohesion is the camaraderie experienced by individuals in a group and among groups in a unit. To help codify how unit members are affected by cohesion, this article posits a four-dimensional typology of unit cohesion, a synthesis of social (affective) and task (instrumental) cohesion with a directional component to yield the following four dimensions: horizontal-social, horizontal-task, vertical-social, and vertical-task cohesion (this is illustrated in Table IV).

Horizontal cohesion is a group-level construct defined in terms of the trust and teamwork that individuals feel within their primary groups.[74–76] Horizontal-social cohesion is the relational character of primary group interactions, i.e., the extent to which group members get along with and like each other consistent with affiliation being identified as a primary human motivation.[77] Horizontal-task cohesion is the extent to which primary group members are unified in their pursuit of group goals, and the meaning they ascribe to that pursuit.

Vertical cohesion, by contrast, operates on the individual-level, and is the extent to which unit members feel they are treated fairly in relationships with the secondary groups in their authority chain, including immediate supervisors, organizational leaders, and institutional and national leadership.[74–76] Vertical-social cohesion exists when unit members feel that they are valued and treated fairly by the authority chain in the organization. Vertical-task cohesion is derived from the unit members' sense of their unique contribution to unit mission and goals, which is also aligned with the intrinsic motivation to be able to apply expertise and establish competence.[77]

Impact of Cohesion on Unit TFF Outcomes

The TFF framework identifies cohesion as a key subdomain for optimizing social fitness among unit members.[12] There is evidence that cohesion in groups and organizations is beneficial and is associated with less relational conflict, greater job satisfaction, more positive organizational behaviors and ultimately better performance, more so than non-cohesive groups.[78–82] On the other hand, researchers have noted deleterious effects of too much cohesion, such as "groupthink,"[83] or dysfunctional, even criminal behaviors from overly zealous members of cohesive groups.[84] In the literature, however, cohesion is more often viewed positively as conducive to unit fitness.

Promotion of Cohesion in Military Units

There are a number of behaviors unit leaders can adopt to promote cohesion along two horizontal and two vertical dimensions.

Leaders can promote horizontal-social cohesion by building trust and teamwork among unit members and minimizing interpersonal conflict.[85] Likewise, unit leaders can foster horizontal-task cohesion through developing the leadership team's collective belief that the group is effective in accomplishing its tasks.[86] Examples of behaviors that support horizontal types of cohesion are training the unit to succeed at challenging tasks, promoting group norms that observe deadlines, encouraging initiative, and rewarding resourcefulness. Vertical dimensions of cohesion involve two directions, leading "up" and leading "down," each with discreet actions. Vertical-social cohesion is focused "lower" in the hierarchy (i.e., involving unit leaders "leading down" toward subordinates) and is promoted by a climate in which unit members

TABLE IV. Four Dimensions of Unit Cohesion

Directionality		Affective (Social)	Instrumental (Task)
		Functional Focus	
Vertical/Secondary Group (Individual Level)		Vertical-Social Cohesion: Unit member feels valued and justly treated by the authority chain in the unit	Vertical-Task Cohesion: Unit member's sense of his/her unique contribution to unit mission and goals
Horizontal/Primary Group (Group Level)		Horizontal-Social Cohesion: Primary group members trust and get along with each other	Horizontal-Task Cohesion: Primary group members are unified in their pursuit of group goals and the meaning they ascribe to that pursuit

feel treated fairly by the unit[87] and in which the unit is committed to their professional welfare.[88] Actions that contribute to this dimension of cohesion include meeting with unit members individually, investing time in the development of unit members, celebrating career milestones, and creating an open climate for learning, communication, and feedback.

Vertical-social cohesion is also focused "higher" in the hierarchy, in which unit leaders nurture their relationships with their senior leaders. Vertical cohesions are promoted by a climate of trust between unit commanders and their superiors and through trust-building among peer commanders. Behaviors that support this dimension can include engaging fully as a member of the boss's leadership team and sharing best practices with fellow commanders.

Vertical-task cohesion focused on subordinates builds from a unit climate in which members understand how their work connects to broader objectives of the unit, Service, and nation.[89,90] Actions that support this dimension of cohesion include quick dissemination of information, clarity in goals for the unit, linkage between unit goals, Service goals and realistic activities of unit members, and reinforcement of purpose and meaning of unit activities.

Unit leaders can also promote task cohesion with superiors by understanding how their unit's readiness and activities impacts the readiness of higher headquarters. Unit leaders must therefore know the jobs of their superiors and provide information essential to their success. These actions can include honest reporting of unit readiness in terms that the superior will immediately understand, prompt and complete communication of unit problems, and facilitation of opportunities to involve superiors in command activities. Another technique for promoting group cohesion at this level is ensuring that unit members know and practice their Service's core values.

Engagement Subdomain

In the military context, engagement is defined as persistent, pervasive, and positive attitudes toward the organization's mission that lead to a positive state of fulfillment in unit members, and productive behaviors both on and off duty.[91–96] Several models describe a central role for engagement in the relationship between the components of the MDR model.

The JDR model assumes that job demands and job resources may cause two different effects: (1) high job demands exhaust employees' mental and physical resources, and can lead to decreased engagement and, subsequently, burnout and (2) job resources can help foster engagement and organizational commitment.[97] It is also important to note that low demands can also weaken engagement when unit members are not sufficiently challenged. Research supports that optimum engagement occurs in the context of curvilinear relationship between demands and engagement in which decreased engagement can be predicted by both low demands (e.g., feeling bored by insufficient challenge at work) and high demands (e.g., feeling overwhelmed by work overload).[98]

The COR theory posits that a desirable balance must be achieved between the resources employees expend and the resources they gain as a result of their actions.[91] When a Service member perceives he or she is losing resources (e.g., support from the chain of command or personal time), a real or perceived loss spiral may occur, causing the Service member to feel less engaged.[99]

Another theory that qualifies engagement is the Social Exchange Theory (SET), which suggests that trusting relationships evolve when the parties abide by the relationship's rules of exchange.[100] SET advocates that employees give willingly to organizations that fit their expectations of demands and rewards, and that commitment declines when these demands or rewards are no longer met or change unexpectedly.[101]

Finally, the Demand-Control Support Model advocates that employees' sufficient control over their jobs and sufficient support from their employer results in feelings of support, while insufficient employee control and organizational support results in feelings of constraint.[102] Employee burnout can be thought of as the antithesis of engagement. This state of emotional exhaustion and disengagement[103] can be predicted by the presence of significant demands like work overload and personal conflict or the absence of resources like social support, autonomy, and participation.[96] Conversely, engagement should be able to be maintained or increased by bringing demands and resources in balance, by greater displays of encouragement, and by creating greater levels of resilience before peak demands.

Impact of Engagement on Unit TFF Outcomes

Many studies suggest that a healthy level of engagement leads to greater resilience and performance outcomes in the workplace.

There is evidence that engagement is associated with resilience in the face of stress and that lack of engagement is associated with burnout. For example, a study on Army units found that Soldiers reporting greater engagement are less likely to report negative consequences under high levels of training.[104] Likewise, engaged employees report feeling more challenged and less frustrated at work than their less engaged counterparts, suggesting that Service members who feel engaged would perceive challenges more positively than less engaged Service members[92] and that greater engagement helps produce more positive work relations. Engaged workers perceive challenges to be more positive and growth enabling, compared to less engaged workers.[92]

Greater engagement leads to increased positive participation and ability to learn.[105] This increase in learning opportunity should lead to improved fitness, since organizations that show sustained excellence over time are characterized by a system that manages processes while giving employees the freedom and responsibility to work and learn within that system.[49] In addition, engagement is also associated with

employees' level of organizational citizenship behaviors, defined as discretionary supportive behaviors that improve an organization but do not necessarily or directly benefit employees (e.g., displaying courtesy, helping others, and advocating for the organization).[94,106]

Understood in context of the demands in the MDR model (see Table I), engagement directly improves unit functioning by mitigating the effects of isolation, boredom/alienation, and high workload. On the opposite end of the spectrum, the Effort-Recovery Model[102] suggests that providing insufficient recovery time could lead to burnout, fatigue, and other health problems, resulting in reduced productivity.

Using Engagement to Improve Unit TFF Outcomes

Leaders improve engagement by creating environments that focus on employee strengths.[92,94,97,108] This concept is similar to transformational and authentic leadership outcomes associated with higher purpose, commitment, trust, intrinsic motivation, and performance.[109] Specific constructs positively associated with increased employee engagement include a focus on strengths,[91] balance between on-and-off duty demands (work–life balance),[110] flexibility or balance between work and recovery,[91,108] unit commitment to development and learning,[105] and a culture that tolerates failure in the name of learning.[91]

Leaders who enable environments that are psychologically safe, in which subordinates can take reasonable risks without fear of retribution or negative consequences to self-image, status, or career, can increase engagement.[93,111] Recognition, rewards, and feedback also play key roles in a subordinate's desire to engage within the organization[100] and reduce burnout.[108] Employees learn through greater participation[105] so an interactive feedback process, rather than a one-way process from leader to follower, may be important to increased engagement. When deployed, time for learning and capacity for tolerating mistakes may be reduced. Therefore, understanding the situational differences across predeployment, deployment, and postdeployment is important to understanding engagement in the military context. During deployment, leaders must focus on behavioral indications of burnout to sustain effective combat operations, and identify individuals who may be most at risk to isolate themselves from the unit and harm the unit's ability to safely complete the mission. This focus leaves little time to focus on the psychological benefits of increasing engagement.

Characteristics of a job, such as the intrinsic immersion in and enjoyment of an activity, can increase engagement.[107] Leaders can enhance these benefits by involving subordinates in the development of role descriptions and responsibilities.[108] Coaching and mentoring behaviors, through which leaders guide instead of direct and help followers clarify goals, can lead to higher engagement.[59,112] Senior military leaders play an important role by modeling engagement, obtaining adequate resources, and fostering an environment that supports the small unit leader's ability to improve engagement. Attention to resources such as money, supplies, personnel, work conditions, and skill development can support goal completion and increase engagement.[91,99,113,114]

The unique role of families is largely absent from the literature on engagement within the civilian population. However, when a Service member's family is more aware of the his or her duties and responsibilities in the workplace, Service member frequently receives more support from home, which enables him or her to be more engaged at work.

There is evidence that engagement can also be enhanced through diversity, effective communication, and goals. Diversity is associated with increased interdependence, inclusiveness, collaboration, learning, overall effectiveness, and engagement.[91] Effective communication creates opportunities for subordinates to make sense of and find meaning in their assigned tasks, also leading to higher engagement.[93,100] Goals lead to higher levels of achievement, enabling individuals and teams to overcome obstacles, creating optimal conditions for employee engagement[91] while reducing burnout.[109]

Adaptability Subdomain

Adaptability is defined as a purposeful change in action, thought or attitude driven by task, social, or environmental factors. This change may be proactive or reactive in nature.[115,116] Adaptability has been identified as an important characteristic of individuals, units and enterprises and has been defined and investigated in a number of ways on each of these levels. At the individual level, adaptability has been described as qualities within the individual that enable him or her to adjust in relation to different task, social, and environmental factors.[116] At the broadest organizational level, enterprise adaptability has been described as adaptive change with respect to the system as a whole (e.g., the military) in response to and anticipation of environmental change.

At the team and unit levels, adaptability is most focused on the need to maintain coordinated action in complex and dynamic environments. Team-level adaptability has most commonly been described in relation to task performance; team performance can change in response to cues which in turn increase team functionality.[115] That change, is manifested in goal-directed behavioral or cognitive goal action or developing new, or modifying of existing, structures, and capacities.[115]

A four-phased adaptive cycle, consisting of situation assessment, plan formulation, plan execution and team learning, exists within this understanding of work adaptability. The cycle results in emergent cognitive states (e.g., situational awareness, shared mental models, and psychological safety) that facilitate adaptability. Earlier research on adaptability at the team level primarily defined the concept interms of adjustment of member roles or role structure to meet internal and external demands.[117,118] A taxonomic perspective of adaptive job performance (see Table V) can provide an overarching framework within which individual

TABLE V. Taxonomy of Adaptive Job Performance[121]

Taxonomy of Adaptive Job Performance
1. Handling emergencies or crisis situations
2. Handling work stress
3. Solving problems creatively
4. Dealing with uncertain and unpredictable work situations
5. Learning work tasks, technologies, and procedures
6. Demonstrating interpersonal adaptability
7. Demonstrating cultural adaptability
8. Demonstrating physical ability

and team-level adaptability can be investigated and the nature of emergence examined.[119]

Impact of Adaptability on Unit TFF Outcomes

Despite the fact that the Services emphasize the importance of adaptability to unit success in theatres of operation, there is limited empirical research that examines the relationship between adaptability and unit outcomes. Although research on adaptability has primarily focused on adaptability as the outcome of interest, implicit in much of this work is the notion that adaptability contributes to outcomes of resilience, and performance within complex domains. Adaptability has been the mechanism argued to facilitate environmentally driven changes in behavior, cognition, and role structure.[115,120] At an organizational level, it has been argued that strategic flexibility/adaptability needs to be promoted within and across the organization to remain competitive and achieve mission success.[121]

Adaptability is a mechanism through which teams are able to maintain effective performance in complex domains. This is exemplified by its inclusion in several classification systems (i.e., taxonomies) that identify mechanisms through which teams are able to maintain effective performance in complex domains.[122,123] For example, adaptability has been investigated in teams with respect to changes in role structure, especially in response to environmental demands and in complex domains. Research has found that teams shifting from a functional to divisional structure showed better performance than teams adapting from a divisional to functional structure; this finding was mediated by the level of team coordination.[120] Functional structures grouping contains people who perform similar work, whereas divisional structures base grouping on product type or geographic region.[120]

Research has shown that job demands require adaptability in the face of stress, uncertain situations, interpersonal situations, cultural diversity, physical demands, crisis situations, and creative problem solving.[119,124] The ability to adequately handle such demands should facilitate performance and potentially resilience. Coping, as a form of adaptability, is also examined as a response to stress.

Other research illustrates the importance of leader adaptability for unit performance within Operation Iraqi Freedom[125] and the importance of adaptive communication under stress.[126] Contemporary warfighting and operational practices characterized by decentralization and pace of situational change underscore the importance of adaptation.[125] The complexity, unpredictability and ambiguity inherent in Operation Iraqi Freedom have forced junior officers to adapt and operate with minimal guidance.[125] Research also suggests that teams can be trained to recognize signs of stress and proactively adapt their communication strategies such that cognitive resources are freed up to focus on the task.[126] Under stress, highly effective teams adopted implicit coordination strategies involving a greater push of information and anticipatory behavior. This change in strategy has been argued to be reflective of the existence of shared mental models of the situation, task environment, team, and member capabilities.[126]

Using Adaptability to Improve Unit TFF Outcomes

Scenario-based training (embedding training within a scenario or realistic simulation of an event) such as leader briefings, sensemaking, and team interaction training can facilitate adaptability by influencing team knowledge structures.[127,128] These trainings can enhance the breadth of mental models, thereby providing individuals a broader cognitive repertoire to serve as a basis for adaptation.[129–131] Scenario-based training is also an effective tool in creating knowledge structures and learning opportunities across a variety of contexts (e.g., medicine, aviation, and military) and delivery mechanisms (e.g., tactical decision making games and military operations in urban terrain facilities).[132,133]

Other studies have focused on metacognitive and regulatory mechanisms as ways to facilitate adaptability. One cognitive mechanism is framing the focus goals as either mastery (desire to acquire knowledge and learn) or performance (desire to perform well in comparison with others).[130] Evidence suggests that emphasis on "mastery goals" (instead of "performance goals") will increase adaptive performance in the long term, but may degrade performance in the short term because of individuals engaging in learning.[131] From an instructional standpoint, active learning, advanced organizers, and guided discovery have all been seen as techniques for building the flexible and cognitive knowledge structures that are characteristic of adaptive individuals.[134,135] Unit leaders are closely involved in the creation and maintenance of norms such as those differentiating between a mastery or performance orientation. Leaders' general influence and visioning abilities can be critical in the adaptive capacities within units and their application.

Finally, a review of existing adaptability training initiatives conducted for the Office of the Deputy Under Secretary of Defense for Readiness argued that to facilitate adaptability, a combination of experience, education, and training is required.[136] The report recognizes the value of developing adaptability through exposure to simulated practice experiences that are commensurate with the challenges and responsibilities of the operational environment as well as more

routine training in which content and circumstances are varied.[137] These training events builds breadth of experience, as compared to repetitive training that may be more narrowly focused. Moreover, the report acknowledged the role that well-crafted simulations and open organizational climates could play in facilitating adaptability. In this vein, a climate in which creative thinking is valued, risk taking is accepted, and there is a tolerance for mistakes is viewed as conducive to adaptability.[136] The presence of this type of organizational climate does not mean that the unit or organization is looking for extreme risk takers, but being adaptive to existing routines, behaviors, attitudes, and cognition requires a degree of risk and tolerance for mistakes. An important caveat to this assertion is that adaptive units are not only tolerant of mistakes, but they use mistakes as learning opportunities.

EXTERNAL RESOURCES

External resources are social and environmental factors outside the unit that influence demands and enhance the performance and resilience of a unit.[10] External resources can help to

(1) Achieve unit mission goals
(2) Reduce demands placed on the unit
(3) Stimulate personal unit growth and development
(4) Enhance performance and resilience of a unit

These resources support the unit's ability to thrive in the face of demands and exceed performance goals. From this perspective, the DoD has a broad range of resources for supporting unit fitness. These resources include senior leaders, policy and doctrine, education and training, material resources, support organizations, social support, and military culture (see Table VI). These external resources can support unit fitness in many ways such as offsetting demands, augmenting gaps in a unit's internal resources, and improving a unit's ability to draw on its own internal resources.

Successful use of external resources depends on several factors, including:

(1) Awareness of the full range of available resources.
(2) Ease of access to resources (e.g., availability of resources and time to use resources).
(3) Perceptions about the usefulness and risks associated with resources (e.g., stigma).
(4) Full application of the available resources to address the unique demands and desired performance outcomes of a specific context; such use of resources helps units determine the ones that are most useful in addressing current and future demands and enhancing resilience and performance.

OUTCOME VARIABLES

In the context of the MDR model, outcomes flow from demands after the application of resources to attain assigned missions and conduct routine unit operations. Outcomes are divided into two categories: (1) those associated with unit performance and (2) those associated with unit resilience. Performance of a unit represents aspects of unit effectiveness and efficiency in accomplishing mission tasks. Resilience of a unit is reflected in the unit's capacity to withstand operational and nonoperational stressors.

The following principles apply to the taxonomy of outcomes in Table VII:

(1) Outcomes can relate to both performance and resilience.
(2) Performance and resilience outcomes can occur at individual, group, or unit level.

TABLE VI. Unit External Resources

External Resource	Definition and Examples
Senior Leaders Outside the Unit	Senior leaders play a critical role in empowering subordinate commanders and units to operate within general intent and guidance. Senior leaders also can furnish resources to meet demands or adjust missions or timelines.
Policies and Guidance	Policies and guidance help ensure good stewardship of resources and adherence to Service values, codes, regulations, and laws.
Education and Training	Education and training resources help prepare unit leaders and members to achieve goals. Military education prepares individuals for expected situations and with principled knowledge so they can adapt to unexpected and dynamic situations. Training prepares units to operate specific systems together for specific coordinated operations.
Materiel Resources	Materiel resources are the physical things that are needed to conduct missions. Examples include water, food, shelter, weapons and ammunition, protective equipment, transportation, communication, and other information systems.
Support Organizations	Military and civilian support organizations offer a wide range of potential resources. Examples of standard military support organizations include operational support such as intelligence, legal, family support, chaplaincy services, health and medical care, and financial management support.
Social Support	Social support external to the unit includes families, friends, and communities that provide physical and psychological support to unit members.
Military Culture	Culture can be defined as belief systems and value orientations that influence customs, norms, practices, and social institutions.[137] Military cultural factors such as "warrior ethos" values (e.g., mission first, never giving up or leaving a fallen comrade) can have profound effects on both resilience and performance.

TABLE VII. Unit Fitness Outcomes

Category	Outcomes	Characteristics
Performance	Quality	Accomplishing the mission (meeting the mission objectives) correctly and thoroughly (beyond minimum)
	Speed	Accomplishing the mission in a minimal amount of time
	Efficiency	Accomplishing the mission with a minimal use of resources, which includes time, money, and staffing
	Dependability	Accomplishing the mission when it is needed, which is especially important in time sensitive and interdependent operations
	Safety	Accomplishing the mission with minimal errors, injuries, and losses
Resilience	Readiness	Medically, physically and psychologically ready or not ready for mission, occupation, and tasks
	Post-traumatic Growth or Adverse Psychological Health Outcomes	Increased or decreased ability to bounce back from adversity/ thrive or grow after a traumatic event or risk of adverse psychological health outcomes such as post-traumatic stress, depression and/or suicidal thoughts, and behaviors
	Moral Injury	Trust or distrust in leadership, feeling like leadership is supportive or apathetic, and mission adheres to ethical and moral standards or requires violating unit values
	Personnel Issues	Interpersonal/intergroup, financial, legal and disciplinary strengths, and problems
	Retention, Presenteeism, Absenteeism	Organizational connection and commitment with unit, mission, occupation and task, or intention to stay/leave
	Well-being	Sense of meaning and purpose and positive/negative emotional states

(3) Outcomes within each category can have interactional effects (e.g., personnel issues can impact mission effectiveness).
(4) Outcomes can enhance and/or undermine resilience and performance (e.g., exposure to a traumatic event can lead to post-traumatic growth (e.g., enhanced clarity about values and meaning in life) and/or post-traumatic stress (e.g., adverse symptoms such as upsetting thoughts and memories, hyper vigilance for potential threats, and heightened irritability).

Each of the unit performance domains are intended to represent group outcomes. The performance outcomes best represent group function because they are single measures of unit performance (e.g., unit A successfully completed X% of mission tasks). In contrast, many of resilient outcomes are individual outcomes that are aggregated to represent the group function (e.g., unit A has X% retention).

DISCUSSION

This article proposes an initial conceptual model of TFF in units within the larger TFF framework. The unit TFF model intends to be both evidence informed and operationally relevant (i.e., aligned with military missions/culture and actionable). The resulting MDR framework is intended to support unit leaders in taking informed actions to improve unit TFF by optimizing internal resources. The development of this MDR framework also helped identify important considerations about the current state of unit fitness theory and research. These considerations include limited consensus across the Services, gaps in the literature, and value of better understanding and evaluating the complex structure and process of group-related factors.

Although there is some informal agreement about which unit fitness domains are important, there is limited formal consensus across the Services and other DoD agencies related to TFF in units. Consensus limitations include (1) consensus on the definition of unit fitness, (2) conceptual integration of unit TFF factors and, (3) metrics and measures for unit TFF factors.

The limited formal consensus about unit fitness across the Services is not surprising given the gaps in the unit fitness literature. These gaps include limitations in evidence, consensus-based standards, and conceptual models that integrate unit fitness domains. The evidence limitations include both a paucity of studies and variability of quality across studies. Therefore, there is an incomplete scientific basis available for developing an evidence-based model.

The current literature also provided unequal coverage across the five categories of internal resources. The literature review identified more numerous and methodologically stronger studies in the areas of cohesion, leadership, and engagement. In contrast, there was less of a research base for communication and adaptability. Multilevel studies that inform the impact or effectiveness of resource application are also lacking across the five areas.

The structural and process characteristics of units are complex and partially understood. The proposed framework describes basic aspects of unit structure and process. The framework describes a unit as a group of individuals who are: orientated around a common mission and identity, embedded in a larger multilevel (individual, team, organization) system, developing as members interact over time, and evolving as members adapt to emerging demands. The framework also highlights dynamics that occur over time with multiple feedback loops. A key dynamic is the central role of unit efforts to protect, maintain, and strengthen resources. In addition, the MDR model emphasizes the complexity of multiple social levels by discerning between the role of resources specific to the individual, unit, and outside the unit.

The interplay between resource domains and resources across social levels is inherent in this model but beyond the scope of this article and the current literature base.

The multiple social levels in unit fitness present an important conceptual challenge. This challenge is clarifying the role and impact of individual and group level contributions on unit performance and resilience. For example, leadership can be narrowly defined as the influence exercised by a single appointed authority figure or more broadly captured by the influence exerted by both formal and informal leaders. Also, cohesion is partly a function of group interactions whereas engagement is more personal commitment to the mission and organization.

There is also a methodological challenge with measuring unit function in the context of multiple social levels.[6] Current measurement approaches of unit resources often aggregate individual responses from a survey (e.g., climate survey) to represent unit levels of the same construct. This approach for measuring unit factors does not directly assess the function of the group as functional entity.

All these discussion points present opportunities for better understanding and measuring unit fitness. This article provides a starting point with the development an integrated model of unit fitness and subdomains based on the latest evidence and operational considerations. An important next step is developing and validating measures of these unit fitness domains that can then be used to systematically study and enhance the proposed model.

CONCLUSION

The proposed model provides an evidence-informed framework for thinking about TFF in units. The model is designed to be conceptually and practically useful. Unit leaders and support agencies are given evidence-informed actions they can leverage immediately to optimize TFF in units; policy makers and scholars are provided with a model that addresses gaps in the literature about unit TFF and suggests four pathways for better understanding of and support for TFF in units. First, this broad and inclusive model of TFF in units can be used to increase general awareness of general unit TFF factors and dynamics and to inform and enhance Service efforts to develop Service-specific unit TFF models. Second, an analysis of current and potential measures of unit TFF within the MDR framework can inform our ability to measure TFF in units. Third, measures of unit TFF factors could be used to assess interdependencies across those factors and across theeight TFF domains (e.g., how factors like cohesion interact with adaptability on a unit level and how they relate to domains like psychological and spiritual fitness on an individual level). Finally, this model can be used as a basis for future model testing and refinement, increased holistic assessment and understanding of unit TFF, and increased understanding of the role of the unit within the larger TFF framework and readiness/force preservation goals.

This article is the first of four in a project designed to: (1) conceptualize TFF at the unit level, (2) operationalize those concepts using evidence-based and operationally relevant measures, (3) empirically validate the model and, (4) provide the unit commander with a practical guide for assessing and addressing gaps in the fitness of the unit. The project's focus on the unit level of command provides an important scoping function; the project was designed from the start to serve a practical purpose for unit commanders confronted with increasingly complex and uncertain environmental demands. This environment requires commanders to consider social dynamics in their units on at least two levels of analysis, the individual and the group, so the model includes constructs that operate and interact at both levels.

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14. ABSTRACT

The military unit is a critical center of gravity in the military's efforts to enhance resilience and the health of the force. The purpose of this article is to augment the military's Total Force Fitness (TFF) guidance with a framework of TFF in units. The framework is based on a Military Demand-Resource model that highlights the dynamic interactions across demands, resources, and outcomes. A joint team of subject-matter experts identified key variables representing unit fitness demands, resources, and outcomes. The resulting framework informs and supports leaders, support agencies, and enterprise efforts to strengthen TFF in units by (1) identifying TFF unit variables aligned with current evidence and operational practices, (2) standardizing communication about TFF in units across the Department of Defense enterprise in a variety of military organizational contexts, (3) improving current resources including evidence- based actions for leaders, (4) identifying and addressing of gaps, and (5) directing future research for enhancing TFF in units. These goals are intended to inform and enhance Service efforts to develop Service-specific TFF models, as well as provide the conceptual foundation for a follow-on article about TFF metrics for units.

15. SUBJECT TERMS

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