

# Looking Toward the Future: the U.S. Cavalry's Role in Multi-Domain Battle

by MAJ Amos C. Fox

As the U.S. Army moves to formally incorporate the concept of multi-domain battle into doctrine, the role of the U.S. Cavalry must evolve. The concept seeks to operate in a synchronized and symbiotic manner across all domains of war<sup>1</sup> while presenting the enemy with multiple dilemmas to develop positions of relative advantage for U.S. land forces in contested operational environments (OE). In musing on warfare, British military theorist B.H. Liddell Hart wrote, "As in war, the aim is to weaken resistance before attempting to overcome it, and the effect is best attained by drawing the other party of his defenses."<sup>2</sup> Liddell Hart's thought can easily be transferred to the evolving role of the cavalry within the multi-domain battle construct.

This article argues that the role of the U.S. Cavalry in multi-domain battle is to link multi-domain and combined-arms capabilities with tactical action through the execution of advanced-force action – dislocating an adversary's formation, reconnaissance and security (R&S) operations and pursuit – to create zones of proximal dominance the supported commander can exploit to accomplish his mission.<sup>3</sup> To explain these ideas, this article will discuss the ideas of battlefield dominance and multi-domain battle, then explain advanced-force actions.<sup>4</sup>

## Operational doctrine for 21<sup>st</sup> Century

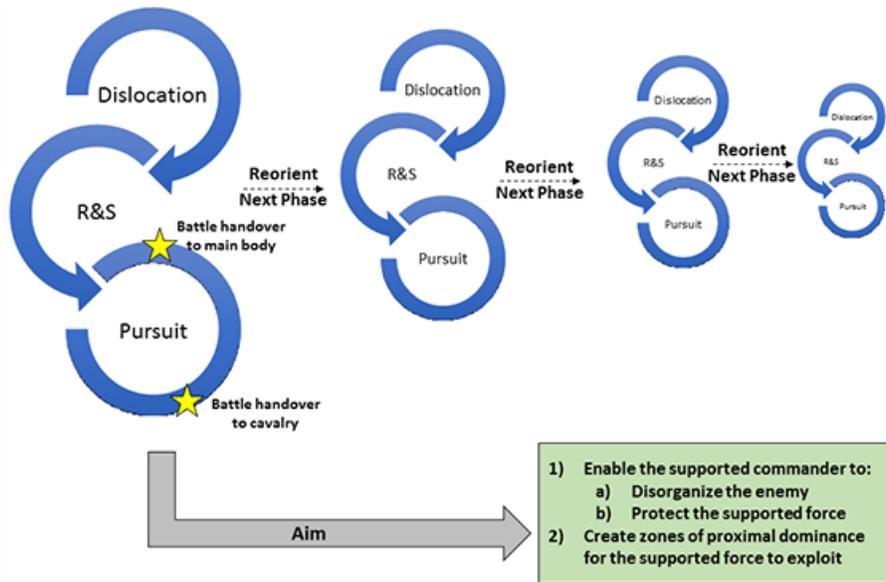
Although not formally captured in U.S. Army doctrine, multi-domain battle is an operational theory of warfare that will serve as the Army's operational doctrine once formally adopted. The multi-domain battle theory acknowledges that contemporary warfare is a struggle between opposed systems in which each participants' system is open, dynamic and adaptive.

To be sure, GEN David Perkins, U.S. Army Training and Doctrine Command commander, said the same: that multi-domain battle "advances the proven idea of combined arms into the 21<sup>st</sup> Century [OE] by describing how future ground-combat forces working as part of joint, interorganizational and multinational teams will provide commanders the multiple options across all domains that are required to deter and defeat highly capable peer enemies."<sup>5</sup> Also, GEN Perkins posits that multi-domain battle will require U.S. ground forces to fight for contested terrain against ensconced enemies who are seeking to retain a position of relative dominance.

For Armor and Cavalry leaders, multi-domain battle is warfare in which interconnected teams work together in pursuit of a common purpose – which is to say, the ethos of warfare for the Armor and Cavalry leader has not changed under the multi-domain battlefield construct; the only thing that has changed are the capabilities available and the character of the fight. Furthermore, GEN Perkins' statement clearly articulates that ground forces are critical in multi-domain battle – ground forces are required to conduct combined-arms action, which underpins all other action in multi-domain battle.

U.S. Army doctrine is less descriptive than GEN Perkins in outlining the concept of multi-domain battle. Army Doctrinal Reference Publication (ADRP) 3-0 describes the concept in stating that "Army forces conduct multi-domain battle as part of a joint force to seize, retain and exploit control over enemy forces."<sup>6</sup> To do this, Army forces are to deter threats and deny an opponent's ability to freely operate on the battlefield – all the while maintaining freedom of movement and maneuver in all domains.<sup>7</sup> As the reader can see, the Army's operations manual casts a wide net around the concept while providing insufficient depth or detail to make the concept tangible for tactical leaders.

In either case, the role of the U.S. Army's cavalry force is not discussed. However, in assessing the current literature available, one can foresee a critical role for the cavalry within this doctrine – a role that moves the cavalry beyond that of just R&S operations. In multi-domain battle, the cavalry should serve as the link between operational doctrine and tactical action. The cavalry should link joint-task-force objectives to tactical action through advanced force action. Advanced-force action, as stated previously, is focused on dislocating the enemy, conducting traditional R&S operations and exploiting success through pursuit operations to enable the supported commander to accomplish his mission. (See Figure 1.)



**Figure 1. Advanced-force action.**

The rest of this article will analyze these concepts in more detail while proposing related innovations to support them.

## Defining battlefield dominance

Before analyzing the role of the cavalry on the multi-domain battlefield, it is instructive to understand the character of dominance. In doing so, one can better understand the proposed role of the cavalry in a multi-domain OE. The questions one should ask about dominance are: 1) what is the character of dominance?; 2) how is it measured?; and 3) what are its defining features? Understanding the answers to those questions will allow the commander and his staff to develop stratagems to positively manipulate dominance.

First, dominance is conditional. The primary conditions that govern the conditional character of dominance are resource requirements and time. Also, dominance requires resource stabilization and resource overmatch in relation to the enemy, time and self-sustainment considerations. The higher the cost in resources, the less likely a force will be able to gain or preserve dominance.

Next, because dominance is resource-dependent, it is fleeting, fragile and prone to surprise. Last, and again tied to resources and time, dominance can be measured in zones, degrees and duration. Since resources are finite, a force cannot maintain dominance everywhere all the time; therefore, anything an adversary can do to negatively impact its opponent's resources will influence its ability to maintain dominance at a specific point in time and space. (See Figure 2.)

<p><b>Dominance is inherently tied to:</b></p> <ul style="list-style-type: none"> <li>• Resources</li> <li>• Time/duration</li> <li>• Enemy action</li> <li>• Self-sustainment activities</li> </ul>	<p><b>One way to reduce dominance:</b></p> $\text{Dominance} = \frac{\text{Resources} + \text{time}}{\text{Enemy action} + \text{self-sustainment}}$
<p><b>Dominance is measured in:</b></p> <ul style="list-style-type: none"> <li>• Zones: <ul style="list-style-type: none"> <li>○ Close to far</li> <li>○ Multiple domains</li> </ul> </li> <li>• Degree (high, medium, low)</li> <li>• Duration (short to long)</li> </ul>	<p><b>Dominance is:</b></p> <ul style="list-style-type: none"> <li>• Fleeting</li> <li>• Fragile</li> <li>• Prone to surprise</li> </ul>

**Figure 2. Quantifying dominance.**

U.S. Cavalry formations, therefore, are ideally suited to deny or disrupt an enemy’s ability to dominate the multi-domain battlefield through the negative manipulation of enemy resources. Moreover, the cavalry is the fountainhead for attaining zones of proximal dominance – or, to use GEN Perkins’ words, the cavalry will enable U.S. ground forces to “capitalize on the temporary windows of localized control to seize, retain and exploit the initiative.”

Zones of proximal dominance, or localized control, should be thought of as an orb of power that radiates from a central position. Power radiation is proportional to the strength of resistance in the environment. Power radiation can also be concentric or directional, depending on the character in which the formation is engaged; however, it is likely that in most cases power radiates directionally – toward an adversarial force. Figures 3, 4 and 5 illustrate the idea of zones of proximal dominance.

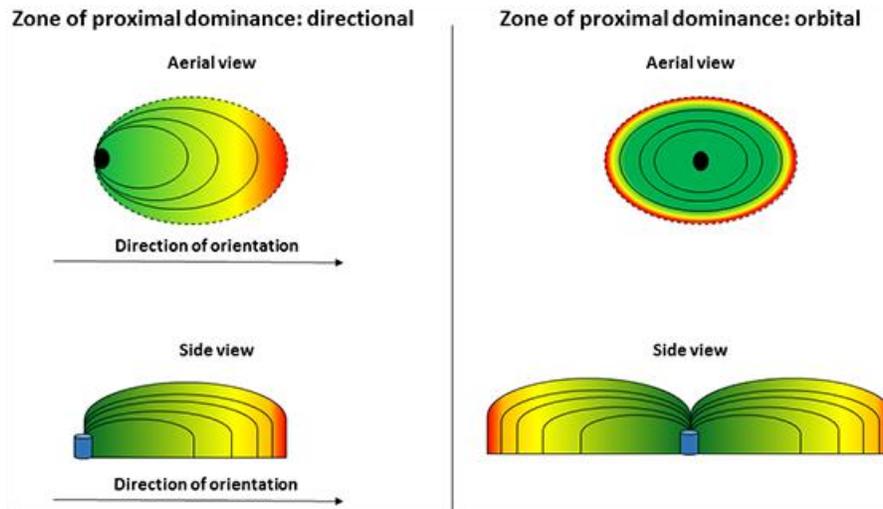


Figure 3. Zones of proximal dominance.

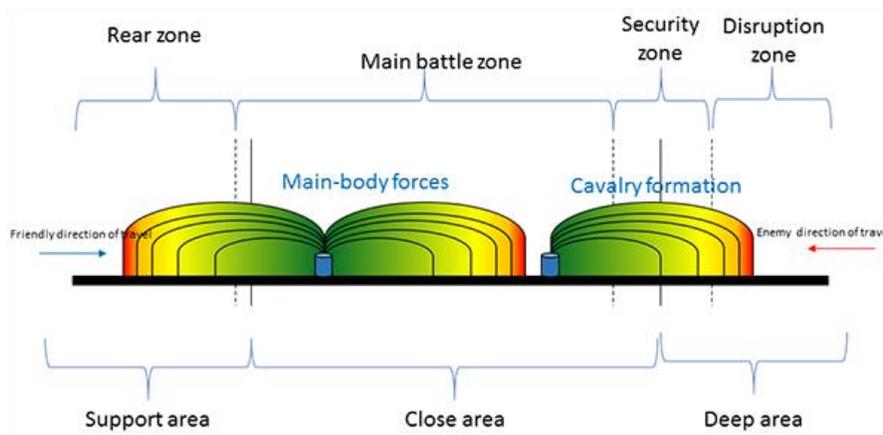
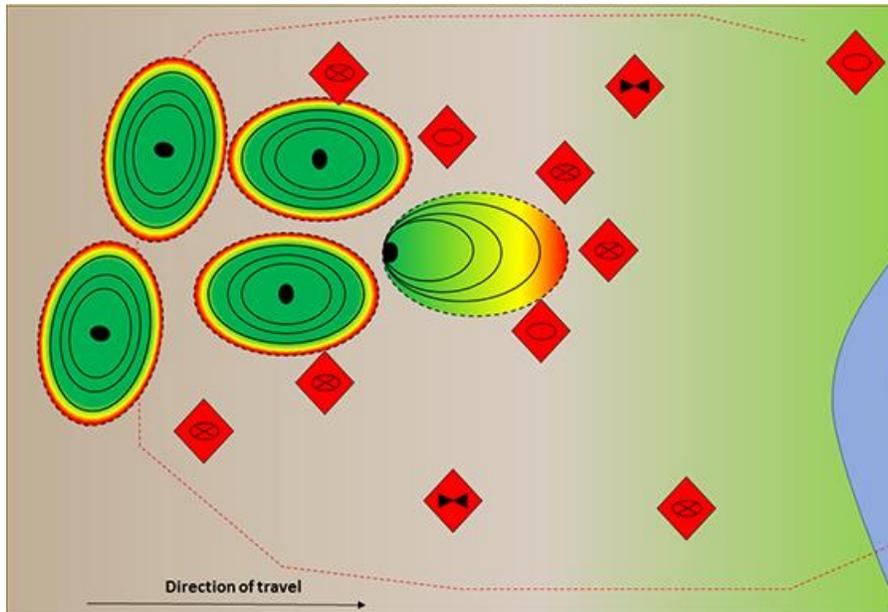


Figure 4. Zones of proximal dominance and operational framework.



**Figure 5. Zones of proximal dominance and battlefield.**

Against peer competitors, in multi-domain environments, battlefield dominance is the farthest thing from absolute. Viewing the battlefield in terms of localized control, or zones of proximal dominance, can assist planners and commanders in developing plans that account for dominance of a given battlespace in all domains.

## **Cavalry's role**

British military theorist J.F.C. Fuller wrote, "Tactical success in war is generally gained by pitting an organized force against a disorganized one."<sup>8</sup> Fuller's thought is a good starting point when assessing the role of the U.S. Cavalry in multi-domain battle because it succinctly captures the sequential layers of tactical operations. Specifically, his point speaks to presenting the enemy with multiple dilemmas to increase chaos in the enemy's formation, yet it also implies protecting one's own formation. Also, Fuller's thought intrinsically addresses striking at the enemy with advanced forces to shape the enemy in ways that enable the main body to achieve a relative position of advantage when making contact.

As such, the cavalry's mission should transition from that of purely R&S operations. The cavalry's goal should be to disorganize an adversary's force so that when the supported force makes contact, victory is all but secured. To accomplish this goal, the cavalry must serve as the link among the joint task force, multi-domain operations, combined-arms operations and tactical formations. Next, the cavalry must operate as a dislocation force to disorganize the enemy while allowing the supported force to remain organized and position itself to exploit the supporting-cavalry formation's action. R&S operations fall within this area. Last, the cavalry should return to its historical role as the Army's pursuit force – the cavalry should be unleashed on fleeing enemies to destroy the remnants of a demoralized enemy to extend or solidify U.S. ground-force zones of proximal dominance.

Imagine a U.S. Cavalry formation – whether an R&S brigade combat team (BCT), armored cavalry regiment (ACR), reconnaissance-security strike group, division cavalry squadron or BCT cavalry squadron – conducting action far forward of its assigned main body. The cavalry formation on the multi-domain battlefield is charged with linking joint fires; offensive and defensive cyber capabilities; and electronic attack while simultaneously conducting reconnaissance, security or counter-reconnaissance to cleave away the enemy's multi-domain and combined-arms capabilities.<sup>9</sup> The purpose of the cavalry's action is to divest an adversary of its ability to fight in multiple domains or with combined arms so the supported force meets the enemy at a position of relative advantage.<sup>10</sup> (See Figure 6.)

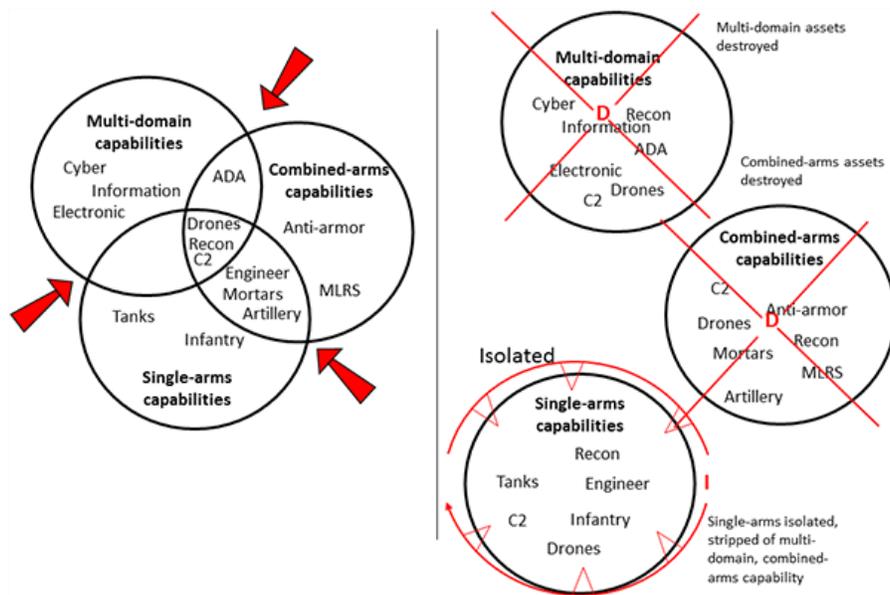


Figure 6. Purpose of cavalry operations: dislocating enemy forces.

To put it another way, the cavalry's goal within a multi-domain battlefield environment is to force the enemy to fight by methods it doesn't wish to fight in by rendering its strength irrelevant, which is achieved through dislocating the enemy's force.

## Dislocation

As mentioned previously, the cavalry's job, in conjunction with multi-domain and combined-arms capabilities, is to positively shape the enemy for contact with the supported force. On the multi-domain battlefield, where enemy formations have access to a panoply of interconnected enablers, denying them access to those tools is paramount. Dislocation is a critical component of defeating an enemy with multi-domain capabilities because it denies the enemy access to its tools: multi-domain and combined-arms capabilities.

Writing on dislocation, Liddell Hart said, "In most campaigns, the dislocation of the enemy's psychological and physical balance has been the vital prelude to a successful attempt at his overthrow." Army doctrine, recently incorporating the concept, states that dislocation is the use of forces to gain a position of advantage in relation to the enemy, nullifying its force's value.<sup>11</sup>

However, the Army's thoughts on dislocation are simplistic and do not fully explore the possibilities of the concept. A far more developed concept on dislocation can be found in the work of American military theorist Robert Leonhard. Leonhard defines dislocation as "the art of rendering the enemy's strength irrelevant";<sup>12</sup> however, in articulating the process associated with the art is where Leonhard's use of the term bears fruit, making it applicable for U.S. Cavalry forces on multi-domain battlefields.

Leonhard's interpretation contends that dislocation is at the core of achieving advantages in combat. He posits that dislocation can be functional, positional, temporal and moral. *Functional dislocation* is forcing an enemy to fight via a method for which it is not designed or for which it is ill-suited. *Positional dislocation* is forcing an enemy to fight in a place in which it is ill-suited, such as luring tanks into urban areas or other restricted terrain. *Temporal dislocation* is fighting at a tempo the enemy is unable to maintain – or conversely, forcing an enemy that seeks to fight at a high tempo to fight at a much slower rate. Lastly, *moral dislocation* is the idea of breaking the enemy's will.<sup>13</sup> The motivating idea is that in dislocating an enemy, a friendly force will be able to avoid the enemy's strength, creating a position of relative advantage in which the enemy's defeat will come at a far cheaper expense.

Leonhard takes the discussion further, providing more depth and breadth to understanding dislocation. Leonhard states, "An enemy force, in any situation, has strengths and weaknesses."<sup>14</sup> He contends that an enemy's strength contains two elements: a component and a condition.<sup>15</sup> In the open, adaptive systems that dominate the multi-

domain battlefields of today, one could view the components of an enemy's strength as its *multi-domain capabilities*, its *combined-arms capabilities* and its *single-arms capabilities*.<sup>16</sup> Together, they achieve synergistic effects that compensate for the weakness of the other capabilities, but individually, or in the wrong environment, the components lose much of their power and utility. Understanding how enemy capabilities lose power, or the conditional nature of strength, is critical to effective planning.<sup>17</sup>

Moreover, if one understands the conditional nature of an enemy's strength, he will in turn understand that the two methods to defeat it are through the destruction of those components and through altering the conditions in which the components derive their strength.<sup>18</sup> This is exactly where the cavalry fits into multi-domain battle – cavalry's goal, operating at the advanced edge of tactical and operational formations, leveraging multi-domain and combined-arms capabilities, able to rely on joint and ground-based cross-domain fires – is to dislocate peer-competitor capabilities. The aim is to degrade the enemy to the point that by the time it meets the supported force, it has been so degraded that it is but a simple problem.

While dislocation is critical, the cavalry will continue to conduct R&S operations for the formation in which they are employed. However, to succeed on a multi-domain battlefield, cavalry formations must be augmented with capabilities that enable R&S operations to push beyond the land and air and into cyber and electronic environments. Thus, in multi-domain battle, R&S is not just ground and aerial action but also cyber and electronic – cavalry formations must be afforded those capabilities to be effective on the multi-domain battlefield.

Multi-domain warfare is focused on technology, but as a RAND report reminds the reader, "Technology matters, yes, but so does the form of organization that is adopted or developed to embrace it."<sup>19</sup> As such, cavalry formations should be provided with capabilities that enable them to simultaneously conduct dislocating action while conducting R&S operations. Anti-armor capabilities permanently assigned to cavalry formations would greatly enhance their ability to conduct advanced-force action while adding a wrinkle an adversary must prepare for – or to put it another way, to increase the number of potential dilemmas an enemy must be ready to address.

The 11<sup>th</sup> ACR regularly experiments with this idea through the use of its anti-armor troop during National Training Center exercises each month.<sup>20</sup> Perhaps experimentation beyond 11<sup>th</sup> ACR would yield tangible results for the cavalry.

The addition of similar capabilities within cavalry formations would provide serious benefits to those formations, including the ability to increase their operational reach and enhance their organic firepower – both of which further enable them to dislocate the synergistic effects of enemy capabilities. The cavalry formation would possess the ability to conduct mobile or static echeloned stripping of assets on the enemy formation as the two formations converged on one another. Furthermore, the addition would increase the stand-off between enemy multiple-launch rocket systems (MLRS) and the supported force, and mission command or sustainment nodes, thus increasing the supported forces' battlefield survivability.

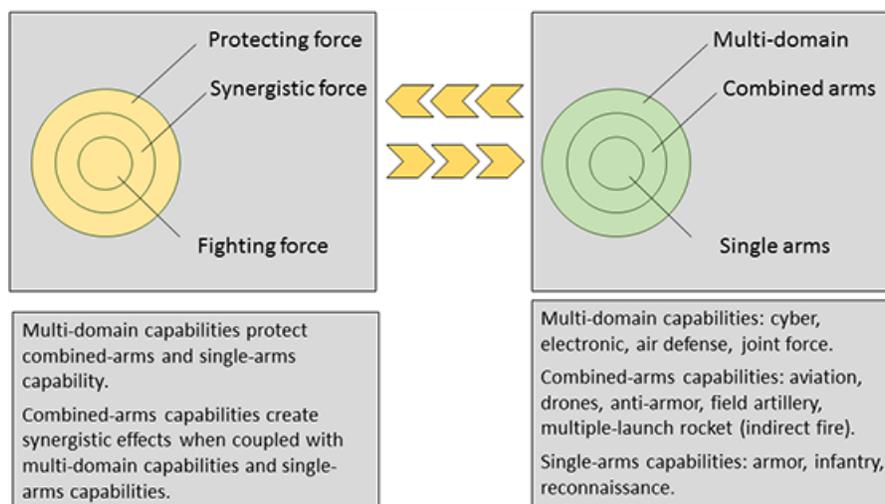
More capabilities such as cyber, electronic and MLRS (or the high-mobility artillery rocket system) should also be added to cavalry formations to achieve similar effects to that discussed in relation to anti-armor additions. The goal of all infused capabilities is to make the U.S. Cavalry able to kick in the door to hostile OEs; tip the balance of power in favor of U.S. forces; and project power to create windows of opportunity, or zones of proximal dominance, for the supported commander.

The previous point begins to address the "why" behind the pre-eminence of dislocation on the multi-domain battlefield. When opponents meet on the battlefield, there is often a disparity in the range of their weapon systems, whether this be kinetic firepower or intangible "firepower" such as cyber, electronic or information capabilities. The weapon that can range the furthest is a "protective weapon," while the weapon of shorter range is the true fighting instrument.

One can see this concept in the use of long-range fires, cyber and electronic attack to set the conditions for a combined-arms assault of a given objective. A great contemporary example of this can be found during the Russo-Ukrainian War's Second Battle of Donetsk Airport, which was fought September 2014 to January 2015 outside the city of Donetsk, Ukraine. During the battle, Russian forces used long-range fires to siege the airport until a given set of conditions were met, then their tanks and infantry assaulted the remaining Ukrainian forces, sealing the

battle as a Russian victory.<sup>21</sup> Russia used its long-ranges fires much like a shield to allow it to get into position for the killing blow with its gladius – its tanks and infantry.

In analyzing the previous point from another perspective, one can further deduce that the true fighting power of a formation is not in the items on the periphery but in its inner core. The outer layers of a formation serve two purposes: to protect the inner core and to shape the enemy to set the conditions for the inner core’s success. (See Figure 7.) Taking this concept to its conclusion, one must understand that to destroy the enemy’s strength, or its inner core, one must first strip away or dislocate the things that protect the core.<sup>22</sup> Therefore, the more of the enemy’s outer protective shell the cavalry can dislocate from the inner core, the more success the supported force will have in defeating the enemy’s main fighting force. Dislocating the outer layers and destroying the inner core will in essence defeat the enemy.



**Figure 7. Layers of a combat formation.**

## Operational framework

The next logical step is to determine where the cavalry fits on the battlefield, or to examine the operational frameworks in relation to the cavalry’s mission on the multi-domain battlefield. ADRP 3-0 describes “operational framework” as a hierarchy, with the area of operations being at the top of the hierarchy, followed by the deep-close-security area construct to define forces in time and space, then the decisive-shaping-sustaining construct to identify priority by purpose, and finally, the main effort-supporting effort construct to identify priority by resource.

However, the cavalry’s evolving role, in which they conduct advanced-force action in support of multi-domain battle, suggests that the deep-close-support area construct is insufficient. ADRP 3-0 defines the *deep area* as “The portion of the commander’s area of operations that is not assigned to subordinate units.” ADRP 3-0 continues that the deep area extends beyond subordinate-unit boundaries to the farthest reaches of a unit’s area of operations; commanders conduct operations within the deep area to influence future events in time, space and purpose. Yet this view of the deep area is passive, reactive and cedes initiative to aggressive opponents. On the multi-domain battlefield – where adversaries will use a variety of tools to assist them in weakening U.S. forces before making contact with the main body – dominating the area between the main body and enemy force is critical to the supported force’s survival. Therefore, a more descriptive operational framework is required.

The Army’s opposing-force tactics manual, Training Circular (TC) 7-100.2,<sup>23</sup> provides a good starting point in describing the concept of battlefield zones: disruption zone,<sup>24</sup> battle zone<sup>25</sup> and support zone.<sup>26</sup> Battlefield zones hold true whether the battlefield is linear or non-linear. Zones are defined by purpose or the desired effect to be achieved within each zone.

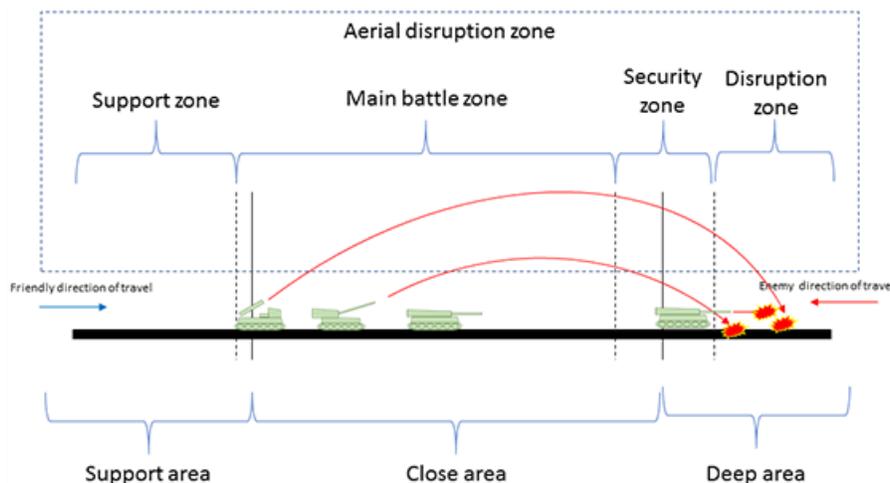
The benefit of this concept is that it enhances planning by providing structure to the battlefield, better allowing staffs to arrange formations in time, space and purpose on the battlefield. It is also a more assertive battlefield framework – a commander instructing his staff to win the disruption-zone fight makes more tangible sense to a

staff or subordinate commanders than does a nebulous statement such as, “We’ve got to win the deep fight.” The proposed construct provides inherent guidance, whereas the deep-close-support framework does not.

Again, restructuring the operational framework to align zones by purpose will likely enhance planning and execution on the multi-domain battlefield by allowing planners and commanders to align formations by purpose. The forward edge of this proposed framework should be the disruption zone. However, a more nuanced description of a battlefield’s zones would be beneficial. In addition to the disruption zone, a *security zone* should be added to provide the cavalry more depth in which to conduct dislocative action and to counteract enemy multi-domain and combined-arms capabilities. The security zone would be the buffer area between the disruption zone and engagement by the main body; the security zone would act as a siphon through which the enemy would pass, where cavalry formations would conduct reconnaissance and/or security operations to accurately determine the post-disruption-zone assessments of enemy formations while conducting battle handover with main-body forces. The goal is to protect the supported force while disorganizing the adversary.

Depending on the character of the situation, the disruption zone and security zone could also be inverted, having the security zone at the far end of a friendly formation, followed by the disruption zone, battle zone and support zone. Leading with the security zone might be beneficial when the enemy’s location is less certain – perhaps in situations where the support formation is conducting a movement-to-contact or is operating in areas where certainty is reduced – or when violence of action must be applied in a more judicious manner.

Under the proposed battlefield framework, main-body forces, charged with accomplishing the mission of the higher headquarters, would operate in the main battle zone. The main body’s actions would be no different than those defined for close-area operations in ADRP 3-0 or the battle zone in TC 100-2. Similarly, to stay with the use of the term “zone,” ADRP 3-0’s term “support area” would require adjusting to “support zone,” but the zone’s purpose would remain the same as it is defined in ADRP 3-0. Figure 8 provides an illustration of this framework.



**Figure 8. Proposed operational framework.**

Minor adjustments to the deep-close-support area operational framework would facilitate the cavalry’s ability to serve both as a disruption force seeking to debride the enemy of multi-domain and combined-arms capabilities for the main body while also providing the zone in which to conduct traditional R&S operations supporting the main body. The battlefield, broken down into zones, facilitates better-developed plans and action through clearly assigning battlespace (battlefield zones) with purpose and a force allocated to accomplish that purpose.

## **Finding future in past**

One must assume that enemy formations will not fight to the last man, but rather possess disengagement criteria that, when met, will trigger the enemy to break contact. With this thought in mind, one can deduce that successful main-body action will cause the enemy, at some unknown point, to retrograde from the battlefield, opening another window of opportunity.

From time immemorial, the cavalry served as a combat arm, and pursuit was the primary realm in which it operated. Cavalry was traditionally used to exploit the success of infantry and artillery on a fleeing enemy by ruthlessly pursuing the enemy and cutting them down as they fled the battlefield. Within the U.S. Army, the idea of the pursuit has rusted and has certainly become disassociated from the cavalry. Since the advent and adoption of mechanized scout cars, the U.S. Cavalry has slowly distanced itself from the tactics of penetration and pursuit as those actions transitioned to the armored force, leaving the cavalry almost exclusively an R&S formation; the only question has been whether its formations should possess the ability to fight for information or conduct stealthy action.<sup>27</sup>

However, the multi-domain battlefield demands powerful ground-based forces capable of pursuit to extend zones of proximal dominance, enabling U.S. ground forces to shift the balance of power on the battlefield. This does not imply that cavalry formations should be kept in reserve, which is an obvious violation of the principles of reconnaissance. Instead, cavalry formations should actively hand off the dislocated and disorganized enemy to main-body forces once the enemy has run the gamut from the disruption and security zones. At that point, cavalry formations, still working in conjunction with multi-domain and combined-arms capabilities, reorganize to pursue the enemy. Once the enemy breaks contact, the cavalry rapaciously runs down the fleeing opponent while employing multi-domain, combined-arms and organic capabilities to destroy the demoralized foe.

## Conclusion

To conclude, the U.S. Army finds itself at yet another shift in the conduct of warfare. Fuller's words offer great insight into how to think about evolutions in warfare: "If mentally we cannot keep pace with the changes in the physical elements of war – the changes in weapons, movement and protection – then our strategy and our tactics will remain obsolete: that is to say, they will not enable us to express the principles of war when once again we are called upon to apply them."

As the Army's understanding of multi-domain battle evolves, the U.S. Cavalry must evolve its strategy and tactics to remain relevant on the 21<sup>st</sup> Century battlefield. The evolution to multi-domain battlefields mandates that the cavalry is no longer just a formation for R&S operations. The cavalry must reorient itself to serve as the primary tactical conduit and integrator of multi-domain capabilities on the battlefield, seeking to disorganize and pursue enemy formations to create, extend or maintain zones of proximal dominance that enable the supported commander to accomplish his mission. Otherwise, U.S. Army forces will find themselves unable to project power in hostile environments that peer competitors seek to dominate.

Lastly, in adapting the U.S. Cavalry as the linchpin among multi-domain, joint and combined-arms capabilities and tactical action, the Army will achieve progress on the Army Capabilities Integration Center's warfighting challenges. Specifically, advancement will be made on the following challenges: Army Warfighting Challenge (AWC) 11, conducting air-ground R&S operations; AWC 12, conducting joint expeditionary maneuver and entry operations; AWC 15, conducting joint combined-arms maneuver; and AWC 17/18, employing cross-domain fires.<sup>28</sup> As the cavalry evolves to better support the Army, the Army will continue to improve in addressing its first-order problems.

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## Notes

<sup>1</sup> Domains of war: land, air, maritime, space, cyber. Information, while not formally categorized as a domain of war, must be included in the MDB paradigm.

<sup>2</sup> B.H. Liddell Hart, *Strategy*, New York: Meridian Books, 1991.

<sup>3</sup> For this article's purpose, *multi-domain capabilities* include joint-force partners and Army capabilities that include cyber, electronic, information and air-defense systems. *Combined-arms capabilities* include Army assets ranging from aviation, drones, close-range air defense, anti-armor and long-range fires (MLRS and long-range howitzers).

<sup>4</sup> This article is intentionally non-descript on the echelon of formation in discussing U.S. Cavalry formations. This is because the article is conceptual and its purpose is to start the discussion on the role the U.S. Cavalry will play on MDBs against potential peer competitors.

<sup>5</sup> GEN David G. Perkins, "Multi-Domain Battle: Joint Combined-Arms Concept for the 21<sup>st</sup> Century," *Army* 66, No. 12 (December 2016).

<sup>6</sup> ADRP 3-0, *Operations*, Washington, DC: Government Printing Office, 2016.

<sup>7</sup> Ibid.

<sup>8</sup> J.F.C. Fuller, *The Foundations of the Science of War*, Fort Leavenworth, KS: Command and General Staff College Press, 1993.

<sup>9</sup> Enemy multi-domain capabilities can include its cyber, electronic, aviation/drone and information-warfare capabilities, plus anti-air/area-denial capabilities. Enemy combined-arms capabilities can include MLRS, field artillery and anti-armor capabilities.

<sup>10</sup> It is important to remember that the U.S. Army has reduced the diversity in its inventory of artillery and rocket munitions, while other nations such as Russia have continued to develop more lethal artillery and rocket munitions. Throughout the Russo-Ukrainian War, Russia has leaned heavily on top-attack, bomblet munitions similar to the U.S. dual-purpose improved conventional munition and thermobaric warheads, which use over-pressure and pure heat and fire to destroy whatever is on the receiving end. The U.S. artillery and rocket arsenal possesses no similar munitions.

<sup>11</sup> ADRP 3-0.

<sup>12</sup> Robert R. Leonhard, *The Art of Maneuver: Maneuver Warfare Theory and AirLand Battle*, New York: Ballantine Books, 1991.

<sup>13</sup> Robert R. Leonhard, *The Principles of War for the Information Age*, Novato, CA: Presidio Press, 1994.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> The term *multi-domain capabilities* refers to cyber, electronic, information, anti-air/aerial denial, special reconnaissance and joint-force capabilities. *Combined-arms capabilities* refer to indirect fires – including MLRS and field artillery – rotary-wing aircraft, anti-armor and man-portable air-defense systems. *Single-arms capabilities* refer to armor, infantry and local R&S capabilities.

<sup>17</sup> Leonhard, *The Principles of War for the Information Age*.

<sup>18</sup> Ibid.

<sup>19</sup> John Arquilla and David Ronfeldt, *Swarming and the Future of Conflict*, Santa Monica, CA: RAND Corporation, 2000.

<sup>20</sup> 2<sup>nd</sup> Squadron's Troop K is 11<sup>th</sup> ACR's anti-armor troop. It is a humvee-based formation that possesses tube-launched, optically tracked, wire-guided anti-tank missiles and Improved Target Acquisition System-equipped platforms to conduct anti-armor action for the regiment.

<sup>21</sup> Timothy L. Thomas, *Russia Military Strategy: Impacting 21<sup>st</sup>-Century Reform and Geopolitics*, Fort Leavenworth, KS: Foreign Military Studies Office, 2015.

<sup>22</sup> Fuller.

<sup>23</sup> TC 7-100.2, *Opposing-Force Tactics*, Washington DC, Government Printing Office: 2011.

<sup>24</sup> The *disruption zone* is defined as "the geographical area and airspace in which a force will conduct disruptive action and [will] conduct action within [it] to attack specific components of the opposing force to break apart their system [and] to create windows of opportunity for the main body force to exploit." The disruption zone is where forces conduct actions to shape the adversary through fixing actions, attritive long-range fires and actions seeking to break apart the cohesiveness of opposing formations, creating zones of proximal dominance, or windows of opportunity, which can be exploited by main-body forces.

<sup>25</sup> The *battle zone* is the sector of the battlefield in which main-body forces seek to destroy disorganized enemy formations.

<sup>26</sup> The *support zone* is the sector of the battlefield that is relatively free from enemy forces and houses the logistics and sustainment infrastructure.

<sup>27</sup> Matthew D. Morton, *Men on Iron Ponies: The Death and Rebirth of the Modern U.S. Cavalry*, DeKalb, IL: Northern Illinois University Press, 2009.

<sup>28</sup> AWC identified in December 2016, <http://www.arcic.army.mil/Initiatives/ArmyWarfightingChallenges>.

## **Acronym Quick-Scan**

**ACR** – armored cavalry regiment

**ADA** – air-defense artillery

**ADRP** – Army doctrinal reference publication

**AWC** – Army warfighting challenge

**BCT** – brigade combat team

**C2** – command and control

**MLRS** – multiple-launch rocket system

**OE** – operational environment

**R&S** – reconnaissance and security

**TC** – training circular