

INVESTING TO SECURE THE FUTURE

*By Mr. Steve Townsend, and
Dr. Stephen B. Chaney*

This article offers a prospectus of what the U.S. Army Cyber and Signal Force must accomplish from a pronency perspective as expressed in the Force 2025 & Beyond concept framework.

You should gain an understanding of what Force 2025 & Beyond is and why it is important. The implications of the concept to the LandCyber Force are explored, and strategies of science and technology investments that position the Army for overmatch are considered.

These are exciting times in our force and ideas to succeed are presented. Some of the ideas will be quickly recognized as old and have subtle nuances that make them radically different. Other concepts in the Force 2025 & Beyond concept require a complete shift in how we think and operate as an Army.

The changes we Army professionals face in the future are vast and challenging. Transitions from execution to preparation are underway, available funding is currently diminishing, and emerging technologies offer both advantages and

vulnerabilities. Although the future strategic environment is impossible to predict with perfect accuracy, if trends continue on their present course, the U.S. Army will begin to lose overmatch by 2025.

Army professionals must adapt, evolve and innovate to meet the goals of strategic landpower. Simply put, Army leaders must plan to succeed in all military operations. Subsequently, the LandCyber Force composed of Army Cyberspace Operations (OCO, DCO, DoDIN/LandWarNet), Electronic Warfare (EA, EP, EWS), and Spectrum Management Operations, must provide leadership and capabilities to enable the Army Force for 2025 & Beyond.

What is

Force 2025 & Beyond?

Continuing in fiscal year 2014 and through 2015, Army leaders will develop and refine what the Army will become. The emerging concept is titled Force 2025 and Beyond and is shaping our Army leaders' thinking about meeting the demands of the future environment in alignment with strategic priorities. The vision describes a force that is leaner, retains capability, prevents overmatch through 2025 and sets conditions for fundamental long-term change well beyond 2025. The emerging concepts for Force 2025 & Beyond in this article

(Continued on page 24)

FORCE 2025 & BEYOND TENETS

Make Army formations more expeditionary--a leaner force

Retain or improve current levels of tactical mobility, lethality and protection

Reduce required sustainment footprint in austere environments

(Continued from page 23)

to U.S. Army Training and Doctrine Command concept developers.

Force 2025 & Beyond is a comprehensive institutional campaign framework (vision, authorities, process and structure) underpinned by ideas from a hierarchy of conceptual work that Army professionals do both internally and as part of the joint force. This includes the Army Campaign Plan, the Army Operational Concept, the Strategic Landpower Concept, the Army Functional Concepts, and numerous other joint efforts. The campaign framework is organized along three lines of effort: force employment; science and technology and human performance optimization; and force design. To the broader Army audience, the Force 2025 campaign framework will operationalize how the Army will retain overmatch, and redesign the force to meet America's future needs.

Why Force 2025 & Beyond?

The Army's concept for Force 2025 & Beyond is critical for operationalizing the multi-service Strategic Landpower Concept. TRADOC language describes Strategic Landpower as the root of what is driving the changes in Force 2025 &

Beyond. Strategic Landpower is the application of landpower towards achieving strategic outcomes across the range of military operations and it recognizes the increasing confluence of land, cyber and human actions. It acknowledges that the Army is the Nation's principal land force, the Marine Corps is

an expeditionary force in readiness within the Nation's maritime force, and Special Operations Command possesses a core competency for effectiveness within the "human domain." The "Joint-ness" of operations has become an undeniable requirement for the Army to succeed.

FORCE DESIGN GOALS FOR FORCE 2025 & BEYOND

A more expeditionary Army that is mission tailored, regionally aligned and globally responsive

Leaner combat units with the same or better tactical mobility, protection and lethality

Ability to sustain itself with fewer external enablers, less dependent on a big support tail

Improved ability to counter anti-access and area denial and capable of joint entry operations

Serves as a waypoint for the Force of 2040; not an end in itself

Although the Army, Marine Corps, U.S. Special Operations Command, and USCYBER Command are designed for different purposes, their purposes intersect in the land domain. Thus, the reality is that the operational environment is going to necessitate some changes in the Army's ideas of strategic landpower, such as maneuvering strategically, expeditionary maneuver, and addressing the human nature of war while interweaving and understanding cyberspace operations.

The U.S. Army in 2025 will be regionally aligned and forward engaged. It must be able to deter conflict and build partner networks, gain understanding, and achieve positional advantage that sets conditions, prevents conflict, and shapes the operational environment while having its eyes open to its own capabilities, as well as others.

Required Capability: Force 2025 and Beyond will operationalize Army support to the Strategic Landpower concept of maneuvering strategically – the employment of landpower short of war

This Force in 2025 is extremely expeditionary, mission tailored, and globally responsive. It must be informed, capable and able to use discriminate power in close operations among the people, while leveraging an agile mix of both lethal and non-lethal action to control events. Expeditionary maneuver will drive fundamental change in the design of the force. We must position today for this change.

Required Capability: Force 2025 & Beyond will operationalize Army support to the Strategic Landpower concept of expeditionary maneuver - landpower at war.

Understanding the human nature of war is critical to the Army of 2025. We must understand how tactical actions interact with populations. We must understand their larger impact on achieving strategic ends. The Force in 2025 must be adept at influencing populations, governments, and other militaries, and prepared to execute

across the range of the human enterprise and social dimensions as a core role for conventional forces. This concept requires Special Operations and Conventional Forces to work together in unprecedented ways. A caution about combat overmatch: those efforts not focused on a human objective often have failed historically to secure strategic success. Thus, the Force in 2025 and beyond must effectively leverage the increasing convergence of the land and cyber domains and the "human domain." Clearly, the level of intensity, the pace, and tempo of human interaction is tremendously accelerated by cyberspace and the human interaction in that domain and the land domains.

Required Capability: Force 2025 & Beyond will operationalize Army support to the central and essential role of Strategic Landpower - understanding, influencing, or exercising control within the "human domain."

LandCyber Force - enabling the Army Force for 2025 & Beyond

The LandCyber White Paper prepared by ARCYBER in coordination with ARCIC and the Cyber Center of Excellence describes a transformational concept: Land and Cyber are merging domains. The paper further offers relevant information to all Army organizations that develop or use Army cyberspace doctrine, organization, training, materiel, leadership and education, personnel, and facilities requirements and capabilities. In other words, if you operate in cyberspace, you should take a look at how we are moving forward and what is expected in the coming years of change. The cyberspace domain grows more contested, congested, and competitive. Land Forces rely more heavily than ever on cyberspace to shoot, move, communicate, and make command decisions. What happens when an adversary, an unassuming bystander, or a friendly operator in cyberspace denies our Army

(Continued on page 26)

(Continued from page 25)

freedom of maneuver. How can we support, protect, and attack in cyberspace to ensure successful Unified Land Operations? This interdependence is the driving force behind LandCyber. It is a fresh perspective on old problems and new threats that we face today, in 2025 and beyond. It is the reason the Army must invest to secure the future.

Today's Investments to Secure the Future

One of the design goals for Force 2025 & Beyond is acknowledgement that Force in 2025 is a way point to the Force beyond 2025. It is not an end in itself. Clearly, we have to think through deeper than 2025, because most of what we come up with in terms of capability will be a way point or an interim solution to meet the needs of the Army beyond 2025. The three lines of effort that comprise the Force 2025 and Beyond campaign framework help to describe how the Army will invest resources of today to secure the deep future.

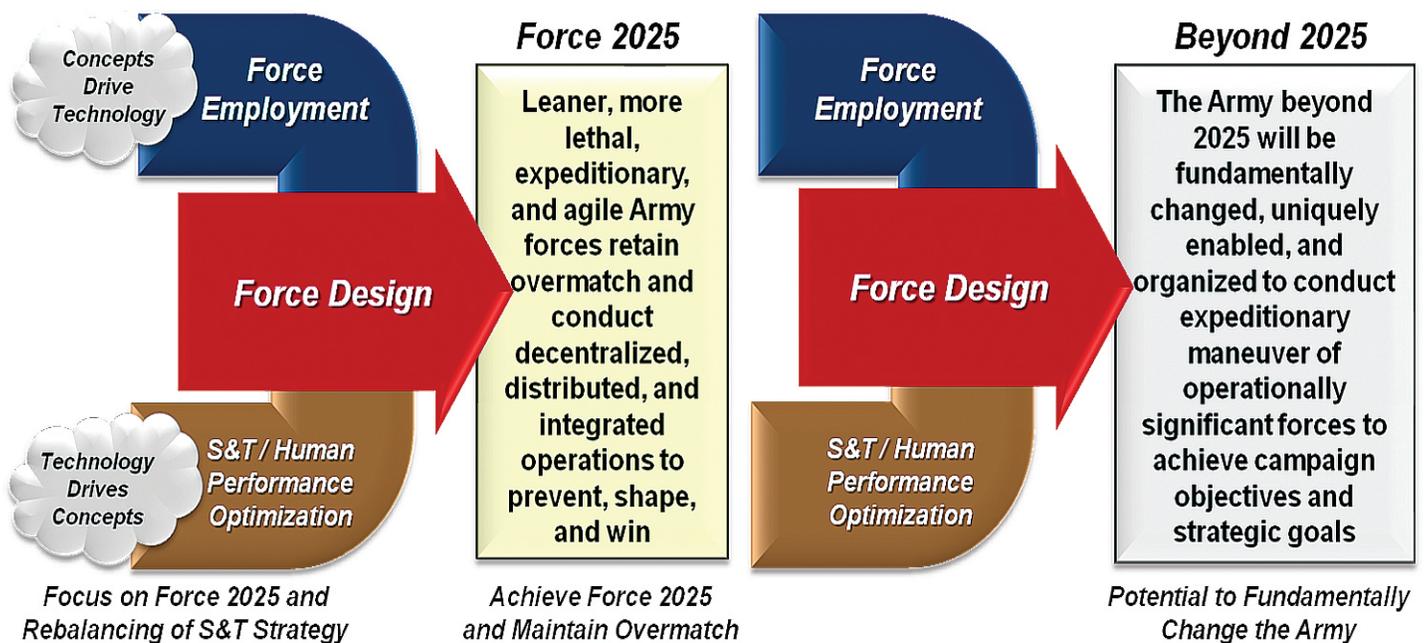
The Force Employment line of effort focuses on changes to force employment that enables the Army to operate differently. The principle effort focuses on the conceptual work that the Army does to produce documents

that describe the ideas which underpin how Force 2025 operates. Today, Army concepts and doctrine focus the Army on combined arms maneuver, wide area security and special operations. The complex operational environment of Force 2025 & beyond however requires the Army to operate differently.

The future Army operates decentralized, distributed, and integrated among combined arms capabilities, special operations forces, and with unified action partners.

The Science and Technology and Human Performance Optimization line of effort focuses on enabling the force differently with balanced technology investments that deliver incremental improvements and S&T efforts with leap-ahead potential. The principle effort focuses on development of a coordinated modernization plan to achieve a more expeditionary BCT while retaining capability, preventing the loss of overmatch through 2025, and setting the conditions for fundamental change beyond 2025. The implications of S&T on Force 2025 and Beyond requires deliberate coordination among all Centers of Excellence to reprioritize science and technology needs with a goal to enable the force through prioritized needs that are as effective and efficient as possible.

The Force Design line of effort represents



the convergence and reconciliation of the first two lines of effort to organize differently. In this line of effort, the Army develops an operational and organizational concept for the Army to meet the requirements of 2025. Force design combines the changes to force employment with the enhancements of S&T and human performance initiatives to inform the design of new or modified Army organizations. The principle effort focuses on validating the ideas across the lines of efforts using experiments, evaluations, exercises, wargaming, and other efforts to determine just how the Army organizes and designs the force. Ultimately, in the operational and organization concept for Force 2025, the Army outlines organizational structures and integrated DOTMLPF solutions needed to optimize the force to accomplish its assigned missions in the future.

Cyber Center of Excellence: S&T

The implications of Force 2025 and Beyond on S&T presents a tremendous opportunity for COEs to partner in new ways with the S&T community. That is exactly what the Cyber COE is doing with the U.S. Army Materiel Command/ Research, Development and Engineering Command, the Communications-Electronics Research, Development and

**THE VALUE OF
CANDIDATE TECHNOLOGIES IS BASED ON
THE FOLLOWING QUESTIONS:**

Does the technology enable the United States to maintain overmatch?

Does the technology maintain or increase the capability of units and enable more expeditionary brigade combat teams?

Does the technology enable combat units to be more self-sustaining or conversely reduce the logistical demand?

Engineering Center, and even the Defense Advanced Research Projects Agency. This partnership continues to develop and involves defining the future force objectives for the tactical network, Cyber, and Electronic Warfare required capabilities, and shaping the research and development activities with the S&T community along the way.

The Cyber COE's approach to optimize the future force takes two directions. One is where concepts drive the technological research and development that can translate into capabilities

within the acquisition process to mitigate capability gaps. The other approach is analysis of promising technology already under development within the S&T community that can be aligned to Force 2025 & Beyond.

The Cyber COE S&T priorities principally center on capability and modernization across our proponent areas. However, our S&T priorities also allow us to analyze the depth of our formation and the ability to make it leaner in the context of the amount of effort we

(Continued on page 28)

(Continued from page 27)

allocate towards the force of 2025. We see the potential to lower procurement costs and decreasing the number of tasks required to configure and maintain what used to be several separate discrete systems, thus reducing operator tasks and complexity too. We also see potential to reduce the logistical tail and the number of field contractor support representatives. In some cases, such as automation of cyber functions, there is even potential to reduce the cognitive work load on the Warfighter.

Conclusion

The future threats to the Army's LandCyber Force are uncertain, daunting, and complex. Adaptive approaches, evolutionary concepts, and innovative solutions are required to maintain the overmatch

that is enjoyed today by the Army. Today's security, cyber, and maneuver capabilities rest on 1990-2000's investment strategies. These decisions were made long before Apple released the first iPhone on 29 June 2007. The next generation of Warfighters require the best available technology, an optimized force design, and an in-depth understanding of the complexities of future warfare. Investments in these areas today position the Army to maintain overmatch and fundamentally change to meet the challenges to Army Force 2025 & Beyond.

Steve Townsend is currently the Concepts Branch chief in the Concepts and Analysis Division, Capability Development Integration Directorate, U.S. Army Cyber Center of Excellence. He has a Bachelor of Science in Information Technology with a concentration

in Advanced Networking from the University of Phoenix. He has worked as a lead concepts developer for the Signal/Cyber COE and is the COE's lead for the Army's Unified Quest series of wargames and future studies, and the TRADOC Campaign of Learning.

Dr. Stephen Chaney is currently the Senior Operations Research and Systems Analysts in the Analysis Branch, Concepts and Analysis Division, Capability Development Integration Directorate, U.S. Army Cyber Center of Excellence. He has a PhD in Physics from the University of Georgia. He has worked as an analyst for the Army and Joint forces at the Army Materiel Systems Analysis Activity, the Joint Task Force Paladin-Afghanistan, the Joint Improvised Explosive Device Defeat Organization, and the Cyber CoE.

ACRONYM QuickScan

ARCYBER – U.S. Army Cyber Command
ARCIC – Army Capabilities Integration Center
CoE – Center of Excellence
DCO – Defensive Cyber Operations
DODIN – Department of Defense Information Network
DOTMLPF - Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities
EA – Electronic Attack
EP – Electronic Protection

EW – Electronic Warfare
EWS – Electronic Warfare Support
GPS – Global Positioning System
LOE - Line of Effort
NetOps – Network Operations
OCO – Offensive Cyber Operations
PNT - Position, Navigation, and Timing
TRADOC – U.S. Army Training and Doctrine Command
RF – Radio Frequency
SATCOM – Satellite Communications
S&T – Science and Technology