

Turning the Building Great Engineers (BGE) Flywheel!

Findings and Preliminary Recommendations From ENFORCE 2008 Work Groups

By Captain William E. Mohr, Colonel Jerry C. Meyer, Colonel Robert A. Tipton, Colonel William H. Haight, Lieutenant Colonel Jeffery A. Anderson, Mr. Steve H. Tupper, and Brigadier General Gregg F. Martin

According to one attendee, if you missed ENFORCE 2008, you missed the best ENFORCE in nine years. (The attendee had only been to the last nine!)

Following are just some of the initial findings and preliminary recommendations developed during the Fort Leonard Wood portion of ENFORCE 2008, "Building Great Engineers." While many of the ideas have yet to be approved or prioritized, the intent of this article is to inform the Engineer Regiment of the current status of BGE and a proposed way ahead to increase engineer leader technical and tactical competency for full spectrum operations in an era of persistent conflict. Bold, italicized statements are from the book by Jim Collins, "Good to Great."¹

"The point is to first get disciplined people who engage in very rigorous thinking, who then take disciplined action within the framework of a consistent system . . ."

The Fort Leonard Wood portion of ENFORCE 2008 built on the foundation of the Engineer Leader Technical Competency (ELTC) work groups. After five months of preparation, the work groups identified the need for engineer leaders to have deep tactical and technical competencies in several areas to support full spectrum engineer operations, which requires the ability to conduct simultaneous offensive, defensive, and stability operations. During the Fort Leonard Wood portion of ENFORCE, attendees representing the entire Engineer Regiment and all ranks rolled up their sleeves and developed specific tasks in each of the six ELTC work group categories that will allow us to build great engineers across the Regiment. The guiding principles were to "Steal [Good] Ideas Shamelessly" (SIS), "Share [Good] Ideas Willingly" (SIW), communicate transparently, brainstorm, cross-talk, collaborate, and inform one another. At the conclusion of the conference, each work group briefed the Chief of Engineers, the United States Army Engineer School Commandant, and all ENFORCE participants on their findings and

recommendations. While a consolidated plan of these findings and recommendations is still being formalized for approval and dissemination, following are some outcomes of each work group's efforts. For reference, the six work groups comprising the ELTC Study and ENFORCE 2008 were—

- Future Roles, Missions, Delivery Methods
- Accessions
- Training and Education
- Employment
- Retention
- Strategic Communications

“Great vision, without great people, is irrelevant.”



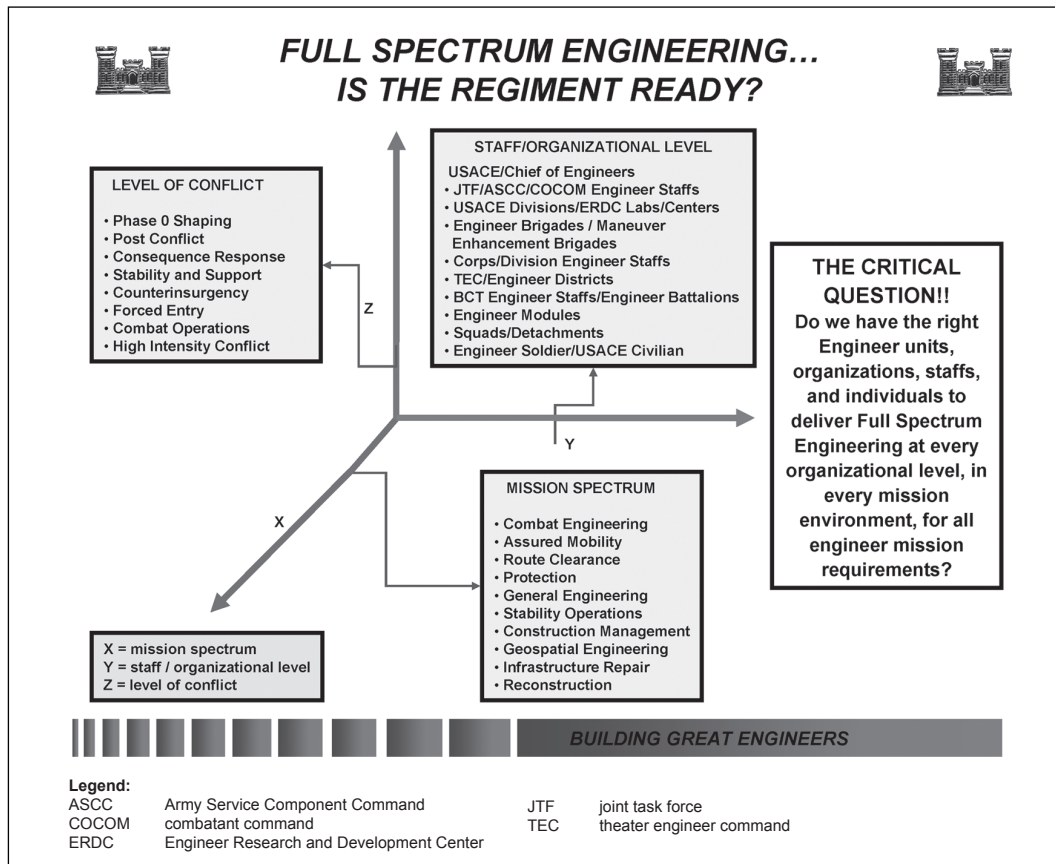
The Future Roles, Missions, Delivery Methods

work group took a three-dimensional look at the missions engineers are tasked to perform by joint doctrine (see figure below). The critical question we asked ourselves was “Do we have the right engineer units, organizations, staffs, and individuals to deliver full

spectrum engineering at every organizational level, in every mission environment, for all engineer mission requirements?”

Throughout the 15-plus hours of focused discussions, a key concept continuously emerged. No matter which mission set we analyzed, the overarching thought was that the Modular Engineer Force provides the Regiment and the Army with the right capabilities for full spectrum engineering. The Regiment is currently challenged when it comes to synchronizing and planning full spectrum engineering. Without an identified and properly resourced and trained engineer staff that fully understands full spectrum engineering operations, the effects at all levels are more likely to be unsynchronized and inefficient.

Another key concept that emerged was that current Army and engineer doctrine does not identify capacity development or capacity building as a resourced mission driver. While the Army's White Paper titled “Stability Operations in an Era of Persistent Conflict,” written by MG David A. Fastabend and endorsed by LTG James D. Thurman, identifies the concept and its criticality in full spectrum operations, our doctrine and our task lists do not. To properly resource engineer units for full spectrum operations, we must accept this as a mission and plan for it at all levels. A quote from the White Paper states, “Capacity building is fundamental to success in stability operations. It is the process of creating an environment, supported by appropriate policy and legal frameworks, which fosters institutional development, community participation, human resources development and enterprise creation, and the strengthening of managerial systems. Capacity building is a long-term and continuing process.”



In a good to great transformation, people are not your most important asset. The right people are.



The **Accessions** work group analyzed the methodology by which the Engineer Regiment accumulates talent. The limited lateral entry of qualified personnel into a military career means that the people brought into the Engineer Regiment today will be our leaders tomorrow. Therefore, the accessions methodology becomes a key component of our talent management system and

must be thoroughly understood.

Research conducted by the employment work group concluded that over 60 percent of all engineer officer positions require some type of an engineering degree. However, last year only 28 percent of the accessed officers had an engineering degree. In an effort to improve engineer officer accessions, the accessions work group made multiple suggestions.

First, the Army must explore ways to allow the Engineer Branch to access enough officers with engineering degrees. The accessions work group stresses the importance of individuals freely selecting the Engineer Branch, rather than being forced to join the Regiment. The campaign plan must include aggressive strategic communications to those populations deemed most desirable for entry into the Engineer Regiment. It was also recommended that fewer first and second choice nonengineering degreed individuals be admitted into the Regiment, while allowing more second and third choice degreed engineers to branch engineers. Other accessing ideas include the ability to guarantee degreed engineers the automatic opportunity to branch engineers.

Current operational demands require representation from multiple engineering fields, to include (but not limited to) civil, mechanical, electrical, and environmental engineering. Even with a supplemental education plan, the Regiment must access proportional numbers of officers across these fields to ensure that future requirements are fulfilled. One idea to increase lateral entry of talented engineers is to increase engineer marketing to promote branch transfers. The Engineer Regiment can exploit its ability to obtain educated engineers by targeting officers who have an engineering degree who are not in the Engineer Regiment. This accessions strategy can also be applied to Officer Candidate School (OCS), enlisted Soldiers, and the Department of the Army Civilians who round out our Regiment. All of these changes in accession protocol should not be misconceived as a onetime “talent grab” by the Engineer Regiment, but rather as a permanent engineer accessions strategy. The future of the Regiment depends on those we access today.

“Greatness is not a function of circumstance. Greatness, it turns out, is largely a matter of conscious choice.”



The **Training and Education** work group focused on enabling execution of the same joint capability areas (JCAs) examined by the futures work group. In reviewing educational systems of U.S. sister Service engineers, as well as allied engineers, it was generally determined that our comrades not only access more degreed engineers, but they invest considerably more in their training and education (time, certifications, etc.) once accessed. Looking across officer, warrant officer, and noncommissioned officer (NCO) personnel categories, the group considered what training or education at what point in a career should occur for which personnel. Using a spreadsheet/matrix approach, they proposed individual training and education that needed to develop over an officer, warrant officer, or NCO career to support the selected JCAs.

A key accomplishment of the group was identification of an extensive methods-of-delivery list that provided a template to help consider different ways to obtain the same knowledge or skill. This list extends beyond Army institutional training to encompass industry experiences, self-development, civilian credentials, and degrees.

Considerable work had been accomplished prior to ENFORCE. Areas of concern included the totality of the United States Army Engineer School (USAES) educational system, current USAES instructional methods, and career educational timelines. To keep pace with the growing technical demands on the Engineer Regiment, the current educational system must be refined and adjusted to ensure a technically skilled workforce, as well as one that is tactically proficient.

The overall USAES educational system must adapt to accommodate more external factors. For example, Army engineers enter the USAES courses at different levels of expertise, but everyone must complete the course requirements through identical methods. Validation testing should be implemented to allow advanced students the opportunity to simultaneously receive beneficial training and education in other areas, rather than waste time repeating known information. To ensure that USAES becomes a world-class teaching operation, teachers need to be carefully interviewed

and selected based on individual teaching ability. Improving technical and tactical competency requires assigning the best teachers to be in the schoolhouse, instead of somewhat arbitrarily assigning available personnel.

Instructional methods during all USAES courses need to move into the 21st century style of teaching. Begin by revamping our current classroom instruction into a more hands-on approach to benefit the visual learners and increase realism. Create a wireless classroom by issuing every student a laptop computer and install a wireless network in all USAES classrooms. USAES must provide the infrastructure for every student to learn in an environment that young students are accustomed to.

Currently, our career timeline creates large gaps between levels of formal military schooling. We need to reduce these gaps by incorporating continuing education courses, to include Proponent-Sponsored Engineer Corps Training (PROSPECT) courses, satellite courses, and civilian courses. To further promote a deep technical competency within the Regiment, we need to provide institutional financial support, additional time and pay incentives for seeking higher education, and licensing within the field of engineering. These efforts will foster an environment for technical engineers to grow and retain their proficiency.

“First get the right people on the bus . . . and the right people in the right seats . . .”



The **Employment** work group focused on developing a new employment strategy that evaluates, segregates, and employs individual talent. Currently, the Regiment uses a legacy employment strategy that fills vacant positions with available personnel. Without question, human capital is the greatest asset in the Engineer Regiment, and developing a job assignment system that matches specific talents against requirements is a must.

Analysis of current requirements indicates that approximately 40 percent of all engineer colonel positions would be best served with an officer who has an engineering degree and technical training and certification beyond current professional military education (PME). With over 60 percent of all field grade positions being technical in nature and requiring an engineering or science and technology degree, the Regiment

must provide career progressions that will develop technical leaders. Engineering competency results from the combination of education and experience; therefore, the Regiment must employ technically educated engineers along defined career paths that allow them to gather the necessary engineering experiences to become technically proficient. Specific career paths must still be developed, but one immediate employment idea is to place junior engineer leaders assigned to modified table of organization and equipment (MTOE) engineer units at installations with United States Army Corps of Engineers (USACE) field offices into short-term USACE utilization assignments to support the development of needed technical skills.

There is great potential with the newly expanded role of engineer 210A warrant officers to address some capability gaps. However, significant effort is needed to develop the appropriate education and employment strategy to support their development into effective technical experts at the platoon or entry level. Additional analysis is still needed to define the requirements for engineer NCOs, and initial indications are that updated career road maps are needed for them as well.

One method proposed to implement this new talent management system is to develop the “Green Pages” concept. Specifically, this concept is an interactive online database that allows individuals to post resumes and organizations to post available positions, which allows for an interactive talent search. The data input by users and the various personnel assignment organizations will create an open job market. By creating a competitive job market, individuals will have to develop their talents to be competitive for desired positions. In return, the Engineer Regiment will yield an increase in technical competency and a more professional workforce.

“Tremendous power exists in the fact of continued improvement and the delivery of results. Point to tangible accomplishments . . . people see and feel the buildup of momentum, they will line up with enthusiasm.”



The **Retention** work group found that current retention rates and trends reveal that the Engineer Branch is losing junior officers at a faster rate than the Army average, and

degreed engineer officers are leaving the Army at a higher rate than those without an engineering degree. Similarly, rates of separation for enlisted personnel are on the rise, particularly at the 20-year mark. To begin to reduce these rates, the retention work group suggests an immediate improvement in individual mentorship and professional development. Alarming information has arisen from the Building Great Engineers project that many of the junior members of the Regiment are uneducated about future positions, engineering educational opportunities, and other career-enhancing opportunities that are provided by the Regiment. It is believed that a focused and dedicated mentorship program would improve retention rates by continuing to educate junior members on all the Engineer Regiment can offer.

In general, the Engineer Regiment must strive to become an adaptable organization that fulfills the needs of our people. The retention work group provided numerous ways to improve the quality of life within the Engineer Regiment. Recommended improvements will focus on incentive pay for technical engineers, additional duty service obligation requests for enlisted post of choice, increased USACE positions for young officers to use their technical degrees, and more flexible moves between the Reserve Component and Active Army. Results from the retention work group also stressed the need for a more adaptable employment plan that would attempt to fulfill individual desires on type of job and job locations. A balance of current Army requirements with personal career ambitions must be achieved to improve retention trends.

“Step by step, action by action, decision by decision, turn by turn of the flywheel—that adds up to sustained and spectacular results.”



Tasked with analyzing and updating the engineer marketing plan, the **Strategic Communications** work group identified multiple areas to improve, but updating and improving the engineer website is the top priority. Other 21st century communications methods need to be improved as well, to include engineer videos, television ads, shows, and creating an interactive web portal.

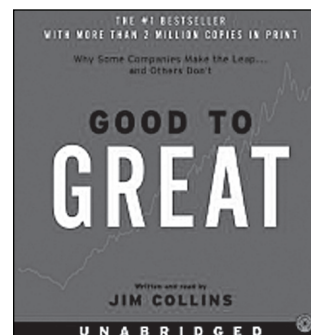
Prior to the creation of our delivery methods, concentrated efforts must be conducted to create an effective engineer brand and a coordinated marketing plan. The current marketing

organization is disconnected; USAES, USACE, and other engineering organizations fail to portray supporting marketing messages. Websites need to be compatible, information needs to be similar, and engineering messages should be consistent among all of these sources. Additional efforts should focus on researching the most effective modes of communication and determining the Regiment’s target audience. With a focus on how to market and to whom, the Regiment can proceed to produce an effective marketing plan.

The strategic communications work group identified the need for a more proactive marketing approach. Local USACE offices and other engineer units have been tasked to interact with surrounding schools, communities, and youth to promote the Regiment. Specifically, the units have been assigned to educate local youth about the engineers and to encourage young college students to seek an engineering degree. The intent of such a proactive plan is to improve the quality of engineers that are accessed into the Regiment.

How can we possibly accomplish some of these actions in a time of war? This is precisely the right time to do so! (See the Chief of Engineers’ “Building the Bench” article on page 10!) We are already seeing implementation and progress! Senior engineer leaders are visiting our best engineering colleges and universities, explaining the opportunities available in the Regiment . . . thousands of United States Military Academy (USMA) and Reserve Officer Training Corps (ROTC) cadets are being introduced to the branch in a spectacular fashion during summer camps . . . videos and promotional materials are being developed . . . nearly 70 percent of the officers branching engineers commissioned from the West Point class of 2008 had engineering degrees (a huge increase from last year) . . . use of laptops and a wireless classroom in the Engineer School is being piloted this summer . . . coordination to leverage sister Service educational courses is ongoing . . . USACE commanders are organizing regionally-based communication and execution confederations of engineer stakeholders, such as Military Academy Liaison Officers, ROTC units, engineer units, Recruiting Command, USACE assets, key university feeder schools, and public and private organizations and stakeholders . . . the flywheel is beginning to turn!

“There is a sense of exhilaration that comes in facing head-on the hard truths and saying, ‘We will never give up. We will never capitulate. It might take a long time, but we will find a way to prevail.’”



The findings and recommendations in this article are not all-inclusive of the work that was done by the ELTC and ENFORCE work groups. To tie together all of the recommendations and findings, we will publish a “Regimental Campaign Plan” that will become a

touchstone document for engineers for the next 5-10 years. On 8 and 9 July, a Council of Colonels met at Fort Leonard Wood to prioritize and direct tasks to all members of the Regiment. We will continue to use the *Engineer Professional Bulletin*; *The Engineer Blast*; “Building Great Engineers,” located at the Engineer School Knowledge Network on Army Knowledge Online (AKO); and e-mails to continue to update the entire Regiment on our progress to Build Great Engineers for the future!



Captain Mohr is the action officer for the Building Great Engineers project at the United States Military Academy at West Point, New York, where he received a bachelor's in civil engineering in 2004.

Colonel Meyer is the Director of Training and Leader Development at the United States Army Engineer School, Fort Leonard Wood, Missouri. He is a graduate of the United States Military Academy and has had two tours at West Point. He holds a master's in chemical engineering from the Massachusetts Institute of Technology.

Colonel Tipton is the Assistant Commandant, United States Army Engineer School, Fort Leonard Wood, Missouri. Previously the Maneuver Support Center Director of Training, he holds a master's in civil engineering from Montana State University and a master's in strategic studies from the Army War College and is a licensed professional engineer in Virginia.

Colonel Haight is the Director, Office of the Chief of Engineers, on the Army Staff. Previous assignments include C7 Engineer, Multinational Corps-Iraq, and Commander, Engineer Brigade, 1st Infantry Division. He holds a master's in mechanical engineering from the University of Washington and a master's in strategic studies from the Army War College and is a licensed professional engineer in Virginia.

Lieutenant Colonel Anderson is the Plans Chief in the Office of the Chief of Engineers in the Pentagon. He has had a variety of assignments, to include assistant division engineer in the 1st Armored Division; mathematics instructor at West Point; battalion and brigade executive officer in Giessen, Germany; and company commander in Fort Carson, Colorado.

Mr. Tupper serves as a liaison from the University of Missouri to Fort Leonard Wood, working issues in education, research, and economic development. He retired from the Army in 2003 after serving in various engineer units and staffs, to include a stint as a professor of military science (ROTC) and as an associate professor of electrical engineering at the United States Military Academy. He holds a master's in electrical engineering from the Georgia Institute of Technology and is a licensed professional engineer.

Brigadier General Martin is the Commandant of the United States Army Engineer School, Fort Leonard Wood, Missouri. He has served in a wide variety of command and staff assignments, including instructor duty at West Point and the Army War College and Commander of the 130th Engineer Brigade, during full spectrum operations in Europe, Kuwait, and Iraq. A graduate of the United States Military Academy, Command and General Staff College, and the Naval and Army War Colleges, he holds a master's and a doctorate from the Massachusetts Institute of Technology.

Endnote

¹ *Good to Great* by Jim C. Collins, Harper Business: New York, 2001.