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The Editor's Corner

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Well This is another special issue of the Garden State Chapter of SOLE. I hope that we can make your professional life a bit easier if we collect a set or series of articles on some of the hot topics in the US Army. I do not determine what is hot, I just do a great deal of reading and research – and I listen to the Branch Chiefs and Division Chiefs I run into every day.

Lean Six Sigma (LSS) is very hot right now. Before I tell you what goodies I have in store for you, I want to tell you that I have taken the IMCOM LSS Awareness Training. IMCOM says it should take 2.5 hours, but I did it in 65 minutes (it has a timer built in). I have many years of experience in both Lean Production and Six Sigma methodology so I did not need the more than two hours allotted to the training. You are asking yourself right now if the training is worth more than two hours of your time; the answer is **yes**. The course is very good, but you have to remember that it is awareness training so that you will not be lost in the LSS discussions at your office.

The first two articles are both glossaries, but they are not the same. The first one just defines the common terms and is a *modern* approach to the topic; this was updated by the authors on 18 August 2006. The second glossary is from the

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November-December 2006 issue (Volume 38 Issue 6) of *Army Logician*. This one is more *old school*; introduces the reader to some of the Japanese terms and to a few concepts not in the first glossary.

The third article is from the Army News Service dated 21 December 2006. This one addresses how LSS improved Humvee repairs in Europe.

In January 2007, I found three Lean Six Sigma success stories posted on the US Army Materiel Command's Relevant and Ready with Lean Six Sigma website (<http://www.amc.army.mil/LEAN/index.aspx>).

They are about a TACOM unit maintenance activity, the AN/TPS-75 radar system, and the C-E LCMC Foreign Military Sales Office Quality Review Board.

The next one is from the 03 January 2007 issue of *Stand-To!* I have no information on the author, Beth Musselman. This one is LSS 101 – the very basics. Note that I gave you the terminology first, showed you some examples so that you would become excited about learning LSS, and then followed that with a basic course.

The last article closes the loop with the IMCOM LSS Awareness Training.

I am trying a different format for this. It is easier for me to do and I hope it is at least as readable as the older format.

GLOSSARY OF TERMS: IMA BUSINESS IMPROVEMENT – LEAN SIX SIGMA

ABC: Activity-Based Costing.

ABS: Army Baseline Services.

Army Communities of Excellence (ACOE): The Army Communities of Excellence (ACOE) Program recognizes excellence in installation management. The program, sponsored by the Chief of Staff of the Army and overseen by the Installation Management Agency (IMA), encourages and rewards installations that optimize their environments and demonstrate a commitment to facility as well as service excellence. With the concept of continuous improvement as a guide to achieving customer service and satisfaction, the Army Communities of Excellence program encourages and acknowledges installations' commitment to excellence.

Army Performance Improvement Criteria (APIC): APIC is the framework we use to deploy an organizational assessment. Strategic planning is a key aspect in that self-assessment process. Conducting an APIC self-assessment is required for all installations that compete for the ACOE award. The seven APIC categories are Leadership; Strategic Planning; Customer Focus; Measurement, Analysis, and Knowledge Management; Human Resource Focus, Process Management; and Results.

Baseline: Financial benefits must be measured from a documented baseline. Once a baseline is determined, it remains fixed until the transformation project is completed or canceled. The baseline for measuring financial benefits may include both financial data (e.g., total funding and cost per unit) and performance data (e.g., outputs and outcomes). The baseline is a snapshot that has a time dimension, meaning that the baseline is established at a point in time and reflects data for all years (year of execution, budget years, and program years) at that point in time.

CLS: Common Levels of Support.

Champion: approves allocation of LSS resources to projects best serving the organization's strategic goals and objectives. Approves individuals and teams for recognition and rewards stemming from successful use of LSS techniques and demonstrated cost savings. Awards GB and BB/MBB certificates. Coordinates with higher headquarters, other services, and partners to ensure the voice of

the customers and key stakeholders is heard and recommendations acted upon.

CMP: Corporate Management Process.

Cost avoidance: Cost avoidances are defined as all cost reductions that are not savings. These can include, but are not limited to, improvements in efficiency, reductions in unit cost, and reductions in the projected cost of unfinanced requirements.

Cost reduction: A cost reduction is a reduction in the number of dollars needed to meet a customer-established requirement by executing a certain process or function. All cost reductions are categorized as savings or cost avoidance.

DMAIC: Full-scale LSS project that uses detailed data analysis through 5 phases = Define-Measure-Analyze-Improve-Control.

Efficiencies: Efficiencies, including enterprise and local LSS business improvement events, A-76/competitive sourcing, strategic sourcing, BRAC and GDP, and divestitures/program reductions, will be achieved through the utilization of LSS.

Executive quality council (EQC): The Executive Quality Council provides executive oversight and recommends guidance relative to the deployment of lean six sigma to the BI-LSS deployment director and champion. The EQC will prioritize, select, and approve projects based on their level of alignment with enterprise goals and objectives, local impact, timing and resource availability.

Green Belts (GB): Part-time practitioners who apply Lean Six Sigma to projects in their job areas. Identify opportunities for improvement.

Implementation Costs: the incremental cost of conducting the transformation project and the cost of implementing the new process. Implementation costs include direct incremental or variable costs of implementing process improvements (e.g., additional contractor support) and any costs required to implement or to sustain the redesigned process (e.g., new technology, software licenses, or training to familiarize workers with the redesigned process). Implementation costs do not include sunk costs or the cost of establishing and maintaining the overall transformation effort.

Independent Assessment: Cost data may be developed by means of an independent assessment. In this context, "independent" means that the

assessment must be developed by someone who is not part of the organization responsible for the process being transformed.

Just Do It: Already developed solution idea (already in improve phase) that can be implemented quickly.

Kaizen: Accelerated DMAIC approach using a dedicated team for 5 days full time to achieve quick results. Also called a Rapid Improvement Event (RIE).

Lean Six Sigma (LSS): A business improvement methodology that maximizes shareholder value by achieving the fastest rate of improvement in customer satisfaction, cost, quality, process speed, and invested capital. [Lean Six Sigma Institute]

Master Black Belts/Black Belts (MBB/BB): Mentoring and coaching of Black Belts and Green Belts, driving organizational change, strategic project execution.

Organizational Self-Assessment (OSA): A tool that provides corporate surveillance of operations – identifying both strengths and opportunities for improvement; and, identifies potential preferred practices. It's an industry standard tool that embeds the expectation for continuous improvement – a theme of IMAs Corporate Management Process – within the organization as a whole. The OSA Tool is designed to simulate an ACOE Site visit.

PAIO: Plans, Analysis, and Integration Office.

PIR: Productivity Improvement Review.

PMR: Performance Management Review.

PowerSteering: the software used to track LSS projects and used to ensure projects remain on track and results are achieved. PowerSteering will also be used by commands to submit the financial and performance data needed to project and track financial benefits for all business transformation projects. Baseline costs, projected costs and actual costs for each transformation project will be reported to HQDA through PowerSteering.

Program Management Costs: the cost of managing the LSS program at HQDA or command level.

Program Management Office (PMO): The BI-LSS PMO is the enterprise BI-LSS organization that houses the BI-LSS deployment director, 2007_LSS

deputy director and all associated BI-LSS resources. The PMO also serves as a strategic planning function within IMA to ensure BI-LSS program goals are aligned with the army strategic plan.

Project Charter: a formalized document outlining the LSS project that will capture a common understanding of the issue and vision, formalize project boundaries, and set expectations.

Project Sponsor: Leaders that provide project direction and oversight. Responsible for overall project success. Identify potential LSS projects.

Project Team Members: Participate with the GB/BB on LSS projects in their job areas.

Quality Council: Committee of leaders responsible for providing governance to the execution of LSS deployment. Prioritize, approve, and monitor LSS projects.

Quick Wins: Already developed solution idea (already in improve phase) that can be implemented quickly.

Resource Manager: Provide assistance in determining project financial benefits and validating results.

Revenue generation: Revenue generation is defined as increasing the dollars that flow into the Army, over and above appropriated funds and customer funding received through a revolving fund.

Savings: Savings are defined as cost reductions that enable a manager to remove programmed or budgeted funds and apply them to other uses. In this definition, savings are viewed from an Army-wide perspective: an initiative that reduces costs in one organization or appropriation but increases costs elsewhere represents savings only to the extent that there is a net cost reduction that can be applied to other uses.

Sigma: the statistical unit of measurement for standard deviation. It measures the variability or spread of the data. Higher Sigma = Lower Variation.

Solutions Center: Deploys BB resources to the regions to support region deployment directors and will provide supplemental ad hoc instruction, tools, best practice guidance, and mentorship to Green Belts in Training, as well as LSS project teams

throughout the organization.

Tollgates: points where primary decisions, analyses, and/or deliverables should be completed.

Value Stream Map: an illustration of a process as it is performed along with supporting data.

Yellow Belt: Awareness level understanding of Lean Six Sigma principles.

A LEAN SIX SIGMA GLOSSARY

Lean Six Sigma has developed its own vocabulary to express its underlying concepts and operational processes. Here are definitions of some of the more commonly used terms. Because of Lean's origins in Japan, Japanese equivalent terms are shown in parentheses in some cases.

The “5 Whys.” The “5 Whys” typically refers to the practice of asking 5 times why a failure has occurred in order to get to the root cause of any problem. Of course, a problem can have more than one cause. Generally, root cause analysis is carried out by a team of people who are related to the problem. No special technique is required.

The “5S’s.” Five terms beginning with “S” are used to create a workplace suited for visual control and Lean production.

- **Sort (Seiri).** Eliminate everything that is not required for the current process and keep only the bare essentials.
- **Straighten (Seiton).** Arrange all items so that they are easily visible and accessible.
- **Shine (Seiso).** Clean everything, and find ways to keep everything clean. Make cleaning a part of everyday work habits.
- **Standardize (Seiketsu).** Create rules by which the first three S's are maintained.
- **Sustain (Shitsuke).** Keep 5S activities from unraveling.

Balanced scorecard. This is a strategic management system used to drive performance and accountability. It balances traditional performance measures with more forward-looking indicators, such as finances, integration and operational excellence, employees, and customers.

Benchmarking. This is an improvement process that an organization uses to compare its 2007_LSS

performance against best-in-class companies. It then uses the information gathered to improve its own performance. Subjects that can be benchmarked include strategies, products, programs, services, operations, processes, and procedures.

Black Belt. Six Sigma team leaders responsible for implementing process improvement projects to increase customer satisfaction levels and business productivity are known as “Black Belts.” They are knowledgeable and skilled in the use of Six Sigma methodology and tools, typically have completed four weeks of training, and have demonstrated a mastery of the subject matter through the completion of projects and an examination.

Cell. A cell is a group of people, machines, materials, and methods arranged so that processing steps are located adjacent to each other and in sequential order. This allows parts to be processed one at a time or, in some cases, in a constant small batch that is maintained through the process sequence. The purpose of a cell is to achieve and maintain an efficient, continuous flow of work.

Continuous flow. Each process, whether in an office or plant setting, makes or completes only the one piece that the next process needs; the batch size is one. Single-piece flow, or one-piece flow, is the opposite of a batch-and-queue process.

Cycle time. This is the time a person needs to complete an assigned task or activity before starting again.

DMAIC. This acronym stands for “define, measure, analyze, improve, and control.” It is the heart of the Six Sigma process and refers to a data-driven quality strategy for improving processes. It is an integral part of any company's Six Sigma quality initiatives.

Green Belt. A Green Belt is an employee who has been trained on the Six Sigma improvement methodology and will lead a team. The degree of knowledge and skills associated with Six Sigma is less than that of a Black Belt or Master Black Belt. Extensive product knowledge is a must in a green Belt's task of process improvement.

Heijunka. This Japanese term refers to the act of leveling the variety or volume of items produced by a specific process over a period of time. This system is used to avoid excessive batching of

product types or volume fluctuations, especially with a pacemaker process.

JIT. “JIT” stands for “just in time.” This means producing or conveying only the items that are needed by the next process when they are needed and in the quantity needed. This process can even be used between facilities or companies.

Kaban. This is a signaling device that gives instructions for production or conveyance of items in a pull system.

Kaizen. “Kaizen” is the Japanese word for improvement. However, it implies more than improvement in the basic production processes. Kaizen represents a philosophy by which an organization and the individuals within it undertake continual improvements in all aspects of organizational life, based on the idea that a process is never perfect.

Lean. This is simply a thought process, not a tool. The key thought processes within Lean are identifying waste from the customer’s perspective and then determining how to eliminate it.

Master Black Belt. These are Six Sigma quality experts who are responsible for strategic implementations within an organization. Their main responsibilities include training and mentoring of Black Belts and Green Belts; helping to prioritize, select, and charter high-impact projects; maintaining the integrity of Six Sigma measurements, improvements, and “tollgates” (control points); and developing, maintaining, and revising Six Sigma training materials.

Material flow. The movement of a physical product through the value stream.

One-piece flow. In its purest form, one-piece flow means that items are processed and moved directly to the next station one piece at a time. Each processing step completes its specific work just before the next process needs the item; the transfer batch is one.

Opportunity cost. This is the foregone value of an alternative that is precluded by choosing another alternative. Other types of costs may include variable, fixed, direct, indirect, period, and product.

Overproduction. This is the process of producing more, sooner, or faster than is required by the next process or customer.

Procedure (Poka Yoke). This is a mistake-proof device or procedure designed to prevent a defect from occurring throughout the system or process.

Productivity. This is the ratio of measured outputs over measured inputs, such as the number of widgets produced per man-hour.

Six Sigma. The Six Sigma process is designed to eliminate variances in a process in order to allow the best flow of work using the necessary analytical tools and processes.

Standard work. This term refers to a precise description of each work activity’s cycle time, “takt time” (see below), sequence of specific tasks, and the minimum inventory of parts needed on hand to conduct the activity.

Supermarket. This is a very visible, controlled inventory of items that is used to schedule production at an upstream process.

Takt time. This is the rate of demand from a customer. Takt time equals the available operating time or requirement.

Theory of constraints. This theory describes the methods used to maximize operating income when an organization is faced with bottleneck operations.

Value. This term refers to a product or service capability that is provided to a customer at the right time and at an appropriate price.

Value stream. This term encompasses all activities, both value added and non-value added, that are required to bring a product, group, or service from the point of order to the hands of a customer and a design from concept to launch to production to delivery.

Value stream mapping. This is a pencil-and-paper tool used to:

- Follow a product or information (or both) activity path from beginning to end and draw a visual representation of every process—whether value added and non-value added—in the material and information flows.
- Design a future-state map that has waste removed and creates more flow.
- Produce a detailed implementation plan for the future state of the organization.

Waste (Muda). Waste includes anything that does not add value to a final product or service, such as an activity that the customer would not want to pay for if it knew it was happening.

Waste types. Sources of waste can include overproduction, excess inventory, defects, over processing, unneeded motion, wasted employee talents, waiting, transport delays, and reprioritization actions.

WIP (Work in process). These are items – material or information – that are between machines, processes, or activities waiting to be processed.

LEAN SIX SIGMA IMPROVES HUMVEE REPAIRS IN EUROPE

KAISERSLAUTERN, Germany – A team from the 21st Theater Support Command (TSC) is applying some focused fire to workplace inefficiency. And now they're seeing immediate results.

A group of Lean Six Sigma practitioners called green and black belts aimed to improve output for the center, which is a new Humvee engine-rebuilding line for US forces in Europe during a weeklong Rapid Improvement Events (RIEs) held December 11-15 on Rhein Ordnance Barracks.

"We are the first to host an RIE in Europe ... because we want to see our process efficient," said Klaus Rupp, the facility maintenance manager. "The RIE is making this improvement possible in a very short time."

An RIE is a project designed to quickly identify inefficiencies and recommend immediate corrective action by using LSS, a process improvement methodology used in industry and being adopted by the military.

Every employee is involved and encouraged to offer criticism of current work processes and to suggest possible solutions to problems they've identified, said Klaus Kastrup, an LSS specialist from the George Group, a consulting firm assisting US Army, Europe with this and other such projects. "Lean Six Sigma is about people," Kastrup said. "If something doesn't work, they're going to know better because they see it daily."

The team spent the first days of the RIE, observing mechanics at work and identifying specific areas in need of streamlining. Organizing parts and tools was one of the obvious improvements immediately incorporated.

"We must think about how much time the mechanic takes to find a tool or find a part," Kastrup said. "If he takes too long because we don't have the part where he needs it, that's waste. We are here to fix that."

Other improvements the team recommended: co-locating the engine disassembly and parts-cleaning centers; and improving communication between mechanics and supervisors by using a status-tracking board.

Rupp believes the changes will "improve life for everyone."

"It gives ownership of the process to the mechanics, improvements come from their ideas," he said, adding that it will also result in returning high-quality vehicles to field units.

Meredith Weber, 21st TSC LSS manager, said the USAREUR-funded event was ideal for improving the engine rebuilding line and could also be useful in improving any process throughout the command.

"An RIE is designed to yield maximum results in a minimal amount of time," she said. "It's fast-paced and can be stressful, but it's useful in identifying and correcting inefficiencies in any process, from manufacturing to office work. There's always something that can be improved, and this is a great tool to make that happen."

TACOM UNIT MAINTENANCE ACTIVITY

Due to many factors, the Fort Knox Unit Maintenance Activity was not able to meet customer requirements. The US Army Armor Center and Fort Knox training base required 10 M1 Main Battle Tanks per week, but the Unit Maintenance Activity was averaging six tanks per week. The service backlog continued to grow, even with the addition of overtime hours.

Roger Oben volunteered to lead a black belt Lean Six Sigma team to find a solution to the problem. Oben already had over a year's experience as a TACOM G3 Lean program coordinator and facilitator, and was in the process of completing Lean Six Sigma Black Belt training.

The black belt team's goal was to meet the needs of the training customers while staying within current manpower and budget levels. The team used Lean Six Sigma tools, such as affinity diagrams, process mapping, value stream analysis, Six Sigma, and kaizen events, and the Define, Measure, Analyze, Lean, Control method, to tackle the problem.

The team did not jump to solutions, but conducted process walkthroughs and gathered data to find the root cause of the problem. The team found that the maintenance providers were not provided enough information on the tank operational status prior to entering scheduled service. The tanks received were often non-mission-capable and had to be removed from the service process when the faults were discovered, causing much wasted activity.

In addition, the black belt team established standard work, visual management controls, and mistake-proof processes as controls to maintain the gains achieved. Because of the team's hard work and perseverance, the black belt project was completed within four months, the first Lean Six Sigma success story for the TACOM Life Cycle Management Command.

The implemented solution had Unit Maintenance Activity personnel perform a ten-level Preventive Maintenance Checks and Services routine prior to sending tanks for scheduled maintenance. This action eliminated the number of tanks deemed non-mission capable during maintenance services and, therefore, increased the number of M1 tanks serviced by 40 percent. With the increase throughput, the team was able to reduce the service backlog from 85 tanks to zero in a 6-month period. Another result from the implementation of Preventive Maintenance Checks and Services was reducing the training fleet equipment densities.

AN/TPS-75 RADAR SYSTEM

The AN/TPS-75 Radar System was taking up to 12 months to overhaul. The impact was an increase to our customer wait time for the system to be returned. A team was formed to conduct lean rapid improvement events of maintenance processes for the system's wave-guides, rotary couplers, shelter reassembly, and antenna parts. Visual management aids were introduced into the rotary coupler repair area to identify the most efficient layouts and establish places to put things where they would be most beneficial, such as toolboxes, parts bins, and work benches. Production control boards highlighted expected performance parameters along with key dates for overhaul deadlines. The boards allowed personnel easy access to track key events in the process to maintain focus on the entire TPS-75 overhaul mission. These and other lean techniques have improved the repair cycle time from 12 months to under 7 months.

CENTRALIZED CASE WRITING AND FOREIGN MILITARY SALES QUALITY REVIEW BOARD

The C-E LCMC Foreign Military Sales Office was experiencing difficulty in providing timely response to foreign countries wanting to purchase military equipment due to a cumbersome process, lack of standardized document format and cost estimating. This resulted in an inability to provide timely response to foreign military sales customers on their orders for military communications equipment.

C-E LCMC held one Value Stream Analysis and one Rapid Improvement Event to achieve the goal of implementing Centralized Case Writing and formal Letter of Agreement Quality Review Board processes. Recommendations included implementing a streamlined Letter of Agreement format and development of an automated Foreign Military Sales price development tool. The formal Value Stream Analysis report identified 3 RIEs, 6 projects and 5 Do-its.

The Central Case Writing Team and Quality Review Board are both currently in operation. The most significant process changes have been the

establishment of a price development tool and standardized folder content. Security Assistance Management Directorate employees have been trained to use the Extended Price and Availability Data Sheet in the case development process. Other major learning points during workforce training were the Letter of Agreement folder content, revised Letter of Agreement process flow, use of an automated footnote matrix, Letter of Agreement review requirements and the formal Quality Review Board process. Metrics will be used to monitor the success of the Command in improving Letter of Agreement turn-around-time and document quality.

Since the implementation of the Centralized Case Writing/Quality Review Board Feb 05, there has been a cost savings in the Case Development activity codes of approximately \$41,373, using 1st Qtr 05 as the baseline. This potential cost saving has allowed C-E LCMC to become more efficient in the overall Case Management of its programs. The impact of the Letter of Agreement turn-around-time and document quality metrics is not known yet; there is still Letter of Agreements which is still being worked under the old process.

Lean Six Sigma: 101

Everything you ever wanted to know about Lean Six Sigma

Lean Six Sigma (LSS) is the new buzz phrase in the Army. You probably hear it referenced every day in meetings, briefings, and general conversation. But do you know what LSS is? Do you know the principles and concepts behind it? Do you know how it is changing the Army? Do you know how it will affect you in the near future?

Although LSS is new to the Army, the philosophies behind it have been around for some time. To understand the evolving concept of LSS, it's best to know how it began.

Lean

The originations of the Lean philosophy are usually traced back to Toyota in the 1950s. However, arguments can be made that other

individuals, including Henry Ford, played significant roles in its development.

In its simplest form, Lean aims to identify and eliminate waste in order to increase speed and flow. To 'lean' a process is to identify and layout each step required from start to finish, identify the critical steps, and deleting those not required or nonessential.

Although it is an improvement tool, Lean is not without its problems.

Cause and effect analysis is imperative in determining what steps are essential in producing the best product and what steps produce a substandard product.

In its pure form, Lean does not use cause and effect analysis as needed; rather it is more concentrated on speed, flow, and elimination of waste.

Six Sigma

Its roots in the civilian world, most experts agree that the Six Sigma concept began at Motorola in the 1970s as an approach to improve quality and effectiveness through statistical control. Six Sigma can be defined as precision followed by accuracy, leading to data-driven decisions.

In layman terms, Six Sigma is designed to identify and eliminate variance (making the system more precise), moving it closer to its target (making the system more accurate), and then basing future decisions on the resulting data (data-driven decisions).

In its mathematical terms, Six Sigma is achieved when a process produces less than 3.4 defects per million opportunities. Six Sigma is the highest level of Sigma.

However, Six Sigma pure also has its downside. Six Sigma continues to make a process more precise and more accurate until it is close to perfection.

Since decisions are data driven rather than speed driven, time is often not factored in and therefore lost.

Lean Six Sigma

According to Rod Tozzi, AMC, Lean Six Sigma senior master black belt, the first signs of a merger

between Lean and Six Sigma were in the mid 1990s when several books combined the two philosophies; although, the joined concepts were not yet referred to as Lean Six Sigma.

Today, most major corporations utilize LSS rather than the individual philosophies. As a hybrid, LSS is able to go a step further than the preceding philosophies could.

Unlike Lean or Six Sigma, LSS accepts a measure of risk and asks how to mitigate that risk. Through analysis of the process, LSS is able to track every step of the process and determine when and where it goes askew before it is complete and results in an unacceptable product.

“One of the key tenants of Lean Six Sigma is to reinforce success and abandon failure,” Tozzi said. According to Tozzi, accepting that measured risk of failure allows losses to be cut and resources moved to a more efficient use.

Another benefit of LSS is the ability to determine the appropriate balance between quality and cost.

For example, the high cost associated with high quality in aircraft maintenance is necessary.

Airlines recognize the importance of precision and accuracy in this process and spend the required time and money. On the other hand, airline companies do not spend the time and money to guarantee that same level of precision in their baggage handling process.

It would be a waste of resources to perfect the baggage handling process to such a precise target.

Lean Six Sigma and the Army

Six Sigma first made its Army debut with AMC. Then commanding general, Gen. Johnny Wilson sent the first HQAMC team to Six Sigma training in 1998.

Lean was officially adopted in 2002 by then AMC commanding general, Gen. Paul Kern in response to the need to better support our Warfighters serving in the Global War on Terrorism.

Kern subsequently directed a transition to LSS in late 2003. LSS allows AMC to increase the number of vehicles and systems repaired, improve

delivery times, and reduce repair cycles – while decreasing costs.

Now in its third year of full implementation, LSS achieved \$110 million in savings in 2005.

“We are turning things around faster for the Warfighter,” said Gen. Benjamin Griffin, AMC commanding general. “This is showing significant savings and improvement wherever it has been implemented.”

LSS can best be seen in AMC’s depots, arsenals, and ammunition plants. The concept has provided for significant reductions in wasted time and funds.

Corpus Christi Army Depot, Texas, used LSS to reevaluate the T700 engine, used in the Blackhawk helicopter, product line.

Once implemented, LSS reduced the overhaul cycle time from over 300 hours to a mere 81 hours, reduced production time from 261 days to 100, and increased efficiency by 83 percent.

But perhaps most impressive was the reduction in time between replacement, from 300 hours to over 1400 – tripling the lifespan of the T700 engine.

Anniston Army Depot, Ala., utilized LSS to reduce repair cycle times in the M992 Field Artillery Ammunition Supply Vehicle, M88 Recovery Vehicle, and Abrams Tank by 20 percent, 37 percent, and 10 percent respectively.

In addition, they increased the production capacity of the M-2 .50-Caliber Machine Gun from 50 to 1,000 per month. In 2005, these efforts saved over \$7.6 million for their customers.

At Pine Bluff Arsenal (PBA), Ark., employees working on the M45 CB Mask Program had an unorganized work environment and were producing more defects than desired.

By applying LSS techniques, PBA was able to reduce lead-time from 30 hours per mask to 30 minutes, a 98 percent improvement. Quality also improved by an impressive 90 percent. These advances lead to a 25 percent increase in production, 100 units per day are now being produced versus the 80 before LSS.

In July 2005, Gen. Peter Schoomaker, U.S. Army chief of staff, sent a letter to each Army command

requesting an assessment be made of processes that would benefit from business transformation. More than 230 processes were nominated.

In March, Secretary of the Army Francis J. Harvey issued a deployment order requiring LSS be implemented Army wide. LSS business transformation principles are expected to free up resources for the operational Army and ensure quicker delivery times to Soldiers in the field.

At a Pentagon press briefing Harvey said, “It's essentially to take the work out of a process and to apply it both to a factory-type operation or repair, and also to a headquarters operation, like the Department of Army.”

Once again, AMC is on the forefront of LSS implementation at the headquarters level:

Lean Six Sigma and You

With the LSS philosophy spreading throughout the Army, it is sure to become the standard. With that in mind, here's how one can be on the forefront of Army transformation:

Attend an LSS familiarization course: The three to four-hour class offers newcomers the basics of LSS. Teaching methods and principles, the familiarization course is recommended for everyone.

Become certified: Processes and procedures altered through LSS were done so through certification projects. Personnel interested in making a change are encouraged to become LSS certified. Currently, LSS training and certification is being held at the headquarters levels, although that is likely to change as it spreads through the Army, says George Terrell, AMC master black belt candidate.

According to Terrell, LSS has three levels of certification:

The first level is green belt certification. The one-week training course is an in-depth familiarization with LSS tools and methods.

It goes into more detail than the familiarization course, but doesn't require the statistical knowledge of the more advanced certifications. Master black belts instruct the course.

Once green belt certified, students may choose to advance to the black belt course.

Requiring approximately six weeks of commitment, this program of instruction is much more intensive.

Students work with their supervisor to select a process that can be more efficient, and develop recommendations based on the application of LSS tools and techniques.

These projects result in the impressive improvements and cost savings attributed to the LSS program. HQAMC currently employs six black belts.

At this point, students have dedicated between five and eight months to training and are now ready to move on to the highest level of certification, master black belt.

As a master black belt candidate, trainees are required to mentor at least two black belt students as they are working on their projects. The main role of a master black belt is to train, educate, mentor others in the program, and deploy LSS throughout the organization.

This exclusive level of expertise will require at least one more year of training and teaching and includes courses in ethics, creative problem solving, deployment planning, and instructor certification. To complete the program, master black belt candidates must instruct green and black belt courses.

At this time, Tozzi is the only AMC master black belt, and four candidates are in training.

Throughout AMC subordinate commands, seven students are currently pursuing their certification.

“Headquarters AMC has trained almost 200 people since it began its green belt, black belt, and master black belt programs in Lean Six Sigma in November 2004,” said Ron Davis, AMC deputy chief of staff for Industrial Operations.

According to Terrell, LSS certification is an invaluable tool. “If you become certified, even at the green belt level, you possess tools and can apply techniques that no one else has.”

With the implementation of Lean Six Sigma, the way the Army does business is soon to change. LSS not only provides monetary savings and waste reduction, most importantly, it provides Soldiers a better product quicker. For further information about training opportunities near you, contact your local Lean Six Sigma office or visit www.amc.army.mil/lean.

IMCOM'S LSS AWARENESS LEVEL TRAINING AVAILABLE ARMY-WIDE

The Installation Management Command's (IMCOM) comprehensive deployment of the business improvement method called Lean Six Sigma (LSS) is now offering 2.5-hour LSS awareness training to personnel both within and outside of the Command via the Army Training Requirements and Resource System (ATTRS).

To support its culture of continuous improvement, IMCOM is training all levels of staff to participate in LSS improvement projects. The 2.5-hour online training is self-paced and offers an interactive learning experience complete with text and video presentation of the material and interactive exercises as well as quizzes. The course employs a modular approach with six areas of information in the course: History, LSS Basics, Project Types, Implementation, Execution, and Success Factors. All IMCOM employees at Headquarters, Region Offices and at the Garrisons are required to take the training to better prepare them for their inevitable interaction with the LSS program. As a result, IMCOM can ensure that all employees have an equivalent base knowledge of LSS to support further studies and projects.

The Lean Six Sigma Awareness Training can be accessed at the IMCOM Business Improvement – LSS AKO web site: <https://www.us.army.mil/suite/page/281441>. For more information contact: IMCOM Lean Six Sigma Strategic Communications, Liz Ayer, (703) 602-5659, liz.ayer@hqda.army.mil.

Meeting Notices

Luncheon Meetings: Third Tuesday of the month.

Date	Time	Location
20 February 2007	1130-1300	Sheraton Eatontown
22 March 2007	1130-1300	Sheraton Eatontown
17 April 2007	1130-1300	TBD

Chapter Management Committee Meetings: Fourth Thursday of the month.

Date	Time	Location
22 February 2007	1130-1300	TBD
22 March 2007	1130-1300	TBD
26 April 2007	1130-1300	TBD
24 2007	1130-1300	TBD

Other Functions:

Date	Time	Location
15 May 2007	All day	Sheraton Eatontown

"Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information on it."

Samuel Johnson (1709-1784), quoted in Boswells' Life of Johnson

"Learning is not attained by chance; it must be sought for with ardor and attended to with diligence."

Abigail Adams (1744-1818), 1780

"Logistic considerations belong not only in the highest echelons of military planning during the process of preparation for war and for specific wartime operations, but may well become the controlling element with relation to timing and successful operation."

Vice Admiral Oscar C. Badger, USN

Supply chain – a set of three or more entities (organizations or individuals) involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer.

Supply chain management – the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.

2006-2007

Chapter Management Committee Members

Please contact Janet Steinberg at 732-389-0390 with any corrections.

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