

MANUFACTURING NEWS

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Wednesday, July 31, 2002

Volume 9, No 14

U.S. Army Embraces Lean Manufacturing

The lean manufacturing philosophy of value-stream analysis, continuous improvement and elimination of waste is taking a foothold in an unlikely organization — the U.S. Army.

The 50,000-employee Army Materiel Command (AMC), which runs five large industrial depots, the Army Research Lab, logistics operations and major arsenals and ammunition plants throughout the world, has adopted lean production as one of its core missions, thanks to the enlightenment of its Commander General Paul Kern and a grass-roots effort to implement lean techniques in the field.

Lean manufacturing

"If a soldier shoots it, drives it, flies it, wears it or eats it, AMC provides it."

plays a prominent role in the newly developed AMC Strategy for transformation. It is there primarily because Kern read the book *Lean Thinking*, saw what lean could do in real-life applications, and decided that he would lead the charge.

Kern has organized lean training sessions for his senior executive staff at headquarters and general officers in all of AMC's subordinate commands. He will institute lean training throughout the entire breadth of the organization.

"We will conduct training on a recurring basis to promulgate this throughout the command and get it to the lowest echelon and sustain the momentum of lean thinking across the command," says Col.

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ISO Considers Standards For Corporate Social Responsibility

The International Standards Organization is considering creating standards for corporate social responsibility. The ISO's Committee on Consumer Policy has proposed creating an advisory group to study how to develop and implement "effective and practical approaches to ensure [that] firms operate in an economically, environmentally and socially responsible manner," says Kernaghan Webb, who is working with the group. The effort "presents a daunting challenge."

Representatives from 170 organizations attended a June 10 meeting in Port-of-Spain, Trinidad, to examine the feasibility for the ISO to develop internationally accepted parameters for

corporate social responsibility. "In the view of many workshop speakers and participants, a wide range of stakeholders stand to win from the creation of a management system standard including businesses, consumers, employees and local communities," says the ISO.

The challenge will be to create standards for small, medium and large companies operating in every industrial sector without creating a new set of "prescriptive substantive performance obligations," says Webb.

The participants agreed that a new standard "could prove an invaluable tool to help make certain that business worldwide is

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A New Sparkle For The Old Industrials

Some dreary industrial sectors of the economy might be the next to enjoy a positive stock market outlook, says Cliff Ransom, direct of research at the Philadelphia-based investment firm of Janney Montgomery Scott LLC. "Just as those folks thought that the technology boom could not end, they cannot see that it has ended," says Ransom. "These same folks aren't used to buying the kinds of stocks that are likely to excel over the intermediate term. I remain undaunted in my bullishness about specific sectors, most of which are concentrated on industries where the participants can operate and generate cash, show advancing earnings and *mirabile dictu*, pay dividends."

As inventories are being worked off and earnings begin to expand, those companies in the diversified electrical equipment and products sector should see improvements in their stock prices. "As surely as night follows the day, if inventories get replenished, capital spending should be somewhere right behind," says Ransom. "If the gold bugs have been winning recently, wait until investors see what happens to earnings in all those companies that have been waiting three or four years for a strong dollar to regress to the mean in foreign exchange markets and stop clobbering earnings reports."

The industrial conglomerates — though not all of them — should begin to look appealing. Danaher remains a paragon of efficiency. Roper Industries "is a role model for small companies." American Standard, ITT, Stanley Works and Black & Decker are all appealing over the long term.

"I did wait for Tyco to lose around \$75 billion in market cap before recently buying some stock personally," Ransom notes. "For perspective, \$75 billion is also approximately the decline in Enron (delisted), but in the case of Tyco, shareholders still own cash-producing assets, even if the enterprise still carries too much risk for many public companies, in my book."

Market Downturn Hits GE Power Turbine Group

General Electric's Power Systems group is feeling the effects of a downturn in the power equipment market. The division will lay off 2,500 people over the next nine months, with further reductions expected next year. Most of the reductions will occur in turbine production facilities because the volume of U.S. orders and shipments of gas turbines is forecast to decline by 80 percent or more over the next two years.

"We have always made it clear that, after several years of exceptional growth, our turbine business would at some point return to more normal order levels, and it is," says John Rice, president of GE Power Systems, which had sales last year of \$20 billion and has 36,500 employees. The company will move its generator manufacturing operations from Pensacola, Fla., to Schenectady.

The Power Systems group will also start producing wind turbine blades in Pensacola for GE Wind Energy. "The wind power industry offers tremendous opportunities for growth and continued technology development," says Rice.

Shell Diversifies Into Wind

Shell Oil Company's WindEnergy division has purchased Whitewater Hill Partners and its rights to develop a 61.5-megawatt wind project in San Geronio Pass, Calif. The purchase will bring Shell's wind capacity in the United States to 230 megawatts.

The new wind park will be built by Cannon Power Corp. with General Electric 1.5-megawatt turbines. It is scheduled to begin generating electricity by the end of August.

Shell has also purchased a similar project of 41 megawatts in Cabazon Pass, Calif., to be completed in August. Earlier this month, Shell signed an agreement with the government of the Netherlands for the development of the 100-megawatt Near Shore Wind Park at Egmond-aan-Zee. Overall, more than 3,000 megawatts of wind energy projects are currently being developed or evaluated by Shell in the United States and Europe.

California Software Firms Receive State Funding

California-based software firms that specialize in improving the supply chain efficiency of manufacturers are some of the seven winners in a CommerceNet grants competition to develop the next generation Internet (NGI). The funding, provided by the California Technology, Trade and Commerce Agency, is intended to create a "real-time value chain industry of software firms whose products can drive the build-out of a broadband interoperable electronic marketplace," says Marty Tenenbaum, founder of CommerceNet. The program awarded grants to Avere, Blue Titan, CRIA Technologies, Open Harbor, Saltare, StoragePoint and WebV2. For a description of the projects, go to www.commerce.net.

Industry Should Pay Heed To World Summit On Sustainable Development

U.S. industry must be prepared to confront worldwide sentiment that is growing increasingly hostile toward globalization and the role that corporations are perceived to play in a continued degradation of life in many countries, says The Conference Board. The upcoming World Summit on Sustainable Development to be held in Johannesburg, South Africa, in late August and early September will highlight the plight of developing nations and the growing disparities in wealth.

The September 11 terrorist attack is viewed in many places throughout the world not as a "Muslim issue," but one that reflects how U.S. business and U.S. foreign policy "are undermining and disempowering people and communities," says Charles Bennett of The Conference Board. "That does not mean that global business was responsible for September 11, but it does mean that corporations are an integral element of an economic and associated political environment that creates unacceptable outcomes for many, many people and ultimately for us all."

The heightened concern over economic disparities could lead to "even more desperate acts with even greater potential for global physical and economic harm," Bennett warns. This situation "will provide a broader context and a new sense of urgency" to the meeting in Johannesburg, which is sponsored by the United Nations and the U.S. Department of State, among others.

Sustainable development has grown to encompass a great deal more than just environmental stewardship. It now means a "world without poverty in a humane and livable environment," notes Emil Salim, chair of the United Nations

office planning the summit.

"Recently, proponents of sustainability have argued that business is responsible for a triple bottom line: environmental and social performance in addition to the traditional financial accountability," says Bennett. "While the legitimacy and true meaning of such a broadened accountability is widely debated...many prominent companies have begun to incorporate such thinking into their operations and their public reporting."

One outcome of the conference might be a new consensus on what constitutes a "sustainable company." Another is a consensus on what businesses' role is in a sustainable economy.

"Pressure continues to build on the international business community to expand its commitment to corporate citizenship and sustainable development," Bennett adds.

U.S. industry needs to care about the upcoming Johannesburg meeting because business will be the center point of numerous debates concerning performance measurements. Government and non-government organizations are getting frustrated with slow progress companies are making toward a sustainable economic model. They "are increasingly evaluating ways in which companies could be regulated toward more sustainable performance," says Bennett.

But business also has a great deal to gain, Bennett argues.

"Commitment to sustainable development is increasing in developing countries where much future business growth potential lies," says Bennett. "Economic and social growth in disadvantaged segments of society offer potentially huge market growth and business opportunity."

What should business expect out of the sustainability meeting? The UN will seek to rededicate "Agenda 21," a document created at the 1992 Rio Summit that created broad principles for environmental protection and development. It also contained treaties on climate change, biodiversity and forest

"Business is responsible for a triple bottom line: environmental and social performance in addition to the traditional financial accountability."

preservation.

"Non-governmental organizations will press for legally binding agreements, especially for corporate accountability, perhaps by attempting to leverage the Enron experience," says Bennett. And finally, there will be a strong push for media coverage to improve public understanding and increase support for sustainable development.

"The goal is to increase public pressure on government and businesses to achieve sustainable development goals," says Bennett. "For these reasons, business participation in the [summit] and the summit's outcomes are of great potential significance for the global business community."

For more information on the summit, including its goals and agenda, set your browser to: <http://www.johannesburgsummit.org/index.html>.

Small Steel Consuming Companies Complain About Bush's Tariffs & Worry About Survival

Small manufacturers that use steel in their products are getting hammered due to high prices and shortages that have resulted from President Bush's imposition of 30 percent tariffs on imports, a half dozen witnesses testified before Congress on July 23.

"Workers in steel-consuming industries vastly outnumber workers employed in the steel industry," Laura Baughman, president of Trade Partnership Worldwide, an economic and trade research firm, told the House Small Business Committee. The more than 193,000 companies that consume steel (of which 98 percent are firms with less than 500 employees) have seen prices jump by 30 percent since the tariffs were imposed. "The dramatic price increases steel consumers are already seeing in the market exceed our estimates" made prior to the imposition of tariffs, Baughman said. Her company's economic analysis of tariffs predicted a loss of between 36,200 and 74,500 jobs due

to the higher prices, or eight jobs being lost for every steel job protected.

Small business executives concurred with Brauhman's analysis. The imposition of tariffs "has been a disaster" for Trilla Steel Drum Corp. of Chicago, said company president Lester Trilla. Imported steel was of much higher quality, an essential attribute for making containers that hold toxic wastes. Imported steel had better gauge tolerance, with less than 1 percent being rejected. The domestic steel scrap figure is about three times higher, he said.

"The [Section] 201 tariffs coupled with the threatened antidumping duties have removed our imported steel from the market," Trilla said. "The price of our domestic steel we must now buy has increased by over 54 percent, which equates to around a 20 percent increase in the cost of a drum. Add to that the cost of increased scrap, breakdowns and rejected drums because of the quality of the [domestic] steel and you can see our competitive damage. Trilla simple cannot absorb these huge cost increases."

The company's customers are balking at paying higher prices and are beginning to look a lower-cost alternatives and overseas suppliers. "While we appreciate that the Steel 201 remedy was put in place to aid the U.S. steel industry in its

time of crisis, it does not make sense if it creates a crisis for us," said Trilla.

Other companies are facing similar conditions. Cold Metal Products of Swickley, Pa., a 400-employee supplier of specialty steel used by other manufacturers to make precision parts, has seen prices increase by \$130 per ton over the past six months. It is the largest increase the company has experienced since its founding in 1926, said John Grove, vice president of procurement.

"Our customers have refused to pay any of these increased costs and have begun to move their business offshore where steel is cheaper," Grove told the committee. Stanley Tool recently told the company that it was diverting its business from Cold Metal Products to England "because the product was cheaper there," said Grove. "This loss of business has a profoundly negative effect on our company. We anticipate that we will lose more business in the future because our increased steel prices due to the Steel 201 tariffs have made us unable to compete in a global economy. The effort to save the U.S. steel mills should not sacrifice companies like ours."

G.R. Spring and Stamping, a \$39-million custom steel manufacturer, recently lost a longstanding \$4.5-million contract to a Canadian company that is purchasing steel that is 30 percent cheaper. The customer "had never worked with the Canadian company — their decision was solely based on price," said G.R. Spring general manager Merle Emery. "This contract was huge for us. These additional costs are so high that they will turn our margins negative and put our company on the road to ruin."

The steel tariffs, said Small Business Committee chairman Don Manzullo (R-III.), "threaten the future of manufacturing in America. The unintended consequences have made it impossible for American manufacturers to compete with foreign manufacturers who don't

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ISO Standards...

(Continued from page one)

conducted in a proper manner to ensure the economic, social and environmental conditions are not only preserved but improved."

Such a standard could substantially help global corporations reverse the growing perception that they are engaging in selfish and destructive behavior and are abusing human rights, ethical values and the environment in the pursuit of profits.

An international standard would create "a golden opportunity for ISO to counter the dark side of globalization," Ziva Patir, director general of the Standards Institute of Israel told the meeting. "The world needs criteria for the best performing organizations."

The standard would create a "triple bottom line," which would require corporations to implement metrics for economic, social and environmental performance, says ISO.

Lean Aerospace Initiative Sums Up Early Lessons

The lean philosophy is “fundamentally changing the way the U.S. aerospace industry operates,” reports the Lean Aerospace Initiative at the Massachusetts Institute of Technology. But the industry still has a long way to go before it fully sheds wasteful business and production practices and begins to “create lean value by doing the job right and doing the right job,” says a new book that outlines the learning that has taken place over the past nine years of the program.

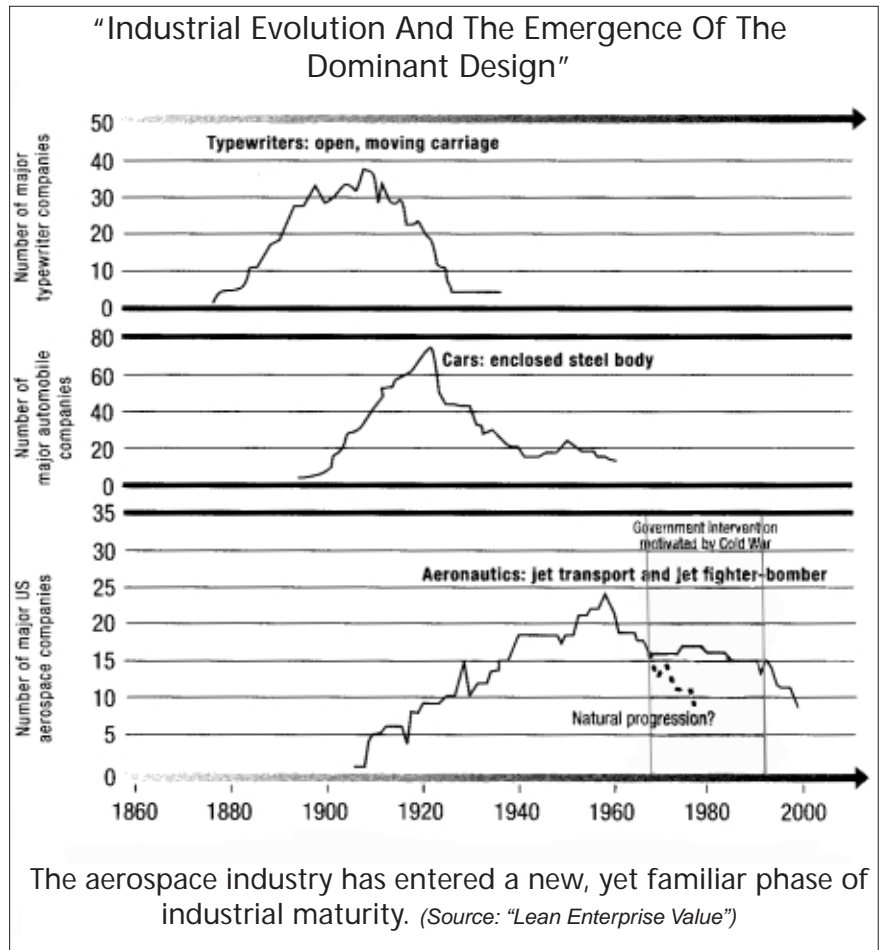
“A competitive enterprise today must eliminate waste, but must also create value, a side of the lean equation that has been overlooked by companies seeking only to cut costs,” says LAI. “Such shortsightedness will ultimately endanger the enterprise’s chances of future success as the economy moves towards greater interdependence and away from distanced competition.”

LAI, an independent partnership between industry, government, labor and academia, has found that lean must go beyond the quick fixes on the factory floor. Companies that succeed embrace lean concepts at the enterprise level because lean calls into question a company’s “core business models and guiding principles,” says the new book entitled *Lean Enterprise Value: Insights From MIT’s Lean Aerospace Initiative*.

“The end of the Cold War, the rise of global competition and the

maturity of core products such as engines and airframes are powerful forces driving the challenge to aerospace,” says the book. “The core challenge comes back to what we call lean enterprise value,” which is the ability of a company to “achieve lasting success in an environment of fundamental change.”

The book is published by Palgrave and is available through Amazon.com for \$39.00 (ISBN 0-333-97697-5).



Steel...

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pay inflated steel prices.”

Manzullo has asked the Justice Department to investigate possible anticompetitive behavior of U.S. steel companies that have raised prices and cut supplies since the imposition of the tariffs. Manzullo said President Bush should “do whatever [he] can to scale back these tariffs as soon as possible.”

House Passes Manufacturing Bill

Legislation approving a \$47-million, three-year program aimed at creating common standards for manufacturing software was approved by the House of Representatives earlier in July. The Enterprise Integration Act (H.R. 2733), directs the National Institute of Standards and Technology to create pilot programs with manufacturers “to support the development of standards for information exchange and use these standards to ensure the seamless flow of information up and down the supply chain,” says the House Science Committee. The bill, adds James Barcia (D-Mich.), “will lead to dramatically shortened design cycle times and reduce the costs of manufacturing complex products.”

The legislation “is exactly what the government should be doing to help businesses become more productive,” says Science Committee chairman Sherwood Boehlert (R-N.Y.).

The measure has not been introduced in the Senate, “but it’s really taken on a life of its own, finally, because people noticed it when it passed the House,” says one House Science Committee aide. “It’s got a real head of steam now” with support from a variety of manufacturing, aerospace, automotive and furniture trade groups.

Record Growth For ISO Quality And Environmental Standards

The International Standards Organization's quality and environmental standards are being adopted by a record number of companies worldwide. The number of companies receiving certification to the ISO 9000 quality standard increased 25 percent last year, or by 101,985 certificates, to a total of 510,616 in 161 countries. "This is by far the highest increase recorded" since the ISO started keeping track in 1993, says the Geneva-based standards group.

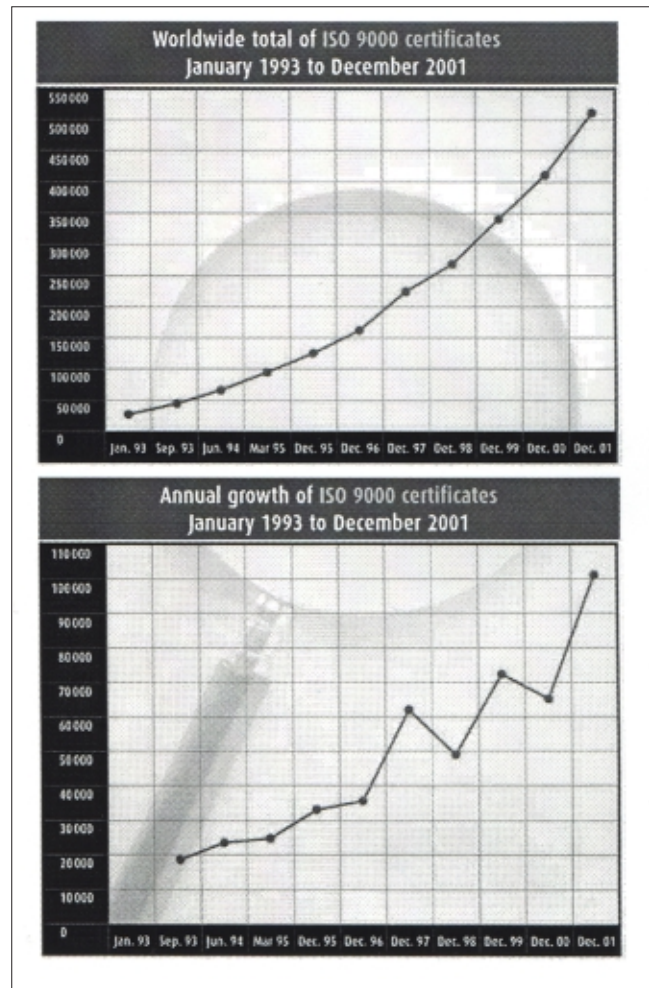
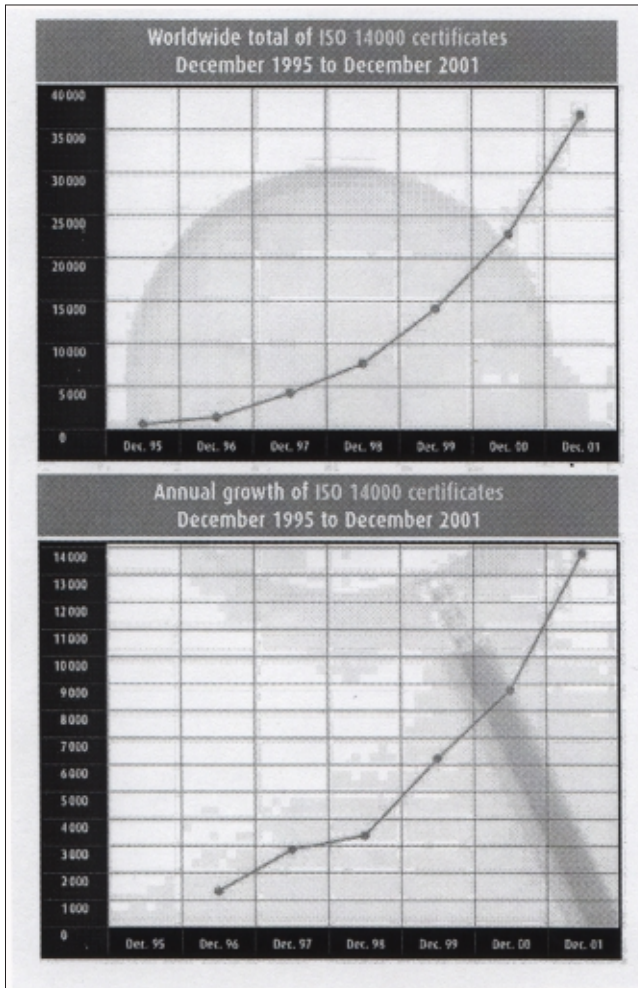
The ISO 9001-2000, an updated version of the 9000 series of quality standards, saw growth last year of 44,388 certificates, accounting for 44 percent of all certificates awarded and now representing 8.7 percent of the overall total.

China had the highest number of new quality certificates with 10,548, followed by Italy with 9,298; Japan with 6,700; and Korea with 3,891. The United States followed far behind with 2,008 new quality certificates awarded last year.

Countries with the leading number of ISO 9000 certifications at the end of 2001 were:

- United Kingdom with 66,760;
- China, 57,783;
- Italy, 48,109;
- Germany, 41,629;
- United States, 37,026;
- Japan, 27,385;
- Australia, 26,750;
- France, 20,919;
- Spain, 17,749;
- Korea, 17,676;
- Netherlands, 12,745;
- Canada, 11,635;
- Brazil, 9,489;
- Switzerland, 8,605;
- Israel, 6,447;
- Hungary, 6,326;
- Czech Rep., 5,627;
- India, 5,554;
- Chinese Taipei, 5,405;
- Belgium, 4,670;
- Sweden, 4,652;
- Thailand, 3,870;
- Ireland, 3,700;
- Singapore, 3,513;
- Malaysia, 3,195; and
- Iraq, 0.

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Lean Takes Root In The Army's Hinterlands

It did not take a directive from headquarters for one Army maintenance depot located 18 miles west of Texarkana, Texas, to begin an aggressive implementation of lean manufacturing. In fact, it took the 9/11 terrorist attack for an Army reserve officer who had experience in lean in the private sector to be reactivated for duty at the Red River Depot.

After surveying the industrial operations at Red River, Lt. Dave Meyer — now elevated to the rank of captain — said there was a better way to do things. His observations and perseverance on how lean could transform the depot caught the attention of Red River Commander Lt. Col. Fred Hart.

Hart then read the book *Lean Thinking*, heard about the lean initiative taking place at the Warner Robins Air Force Base in Georgia, hired the Simpler Consulting firm under an existing Air Force

contract and went to work on training the 1,400 people in the depot.

Red River has an operating budget of \$230 million. It runs 17 production programs involving vehicles, engines and components. It will remanufacture 590 vehicles this year under a "recapitalization" program in which it fully refurbishes 20-year-old heavy combat and tactical vehicles to make them like new — zero miles, zero hours.

After Hart got the ball rolling at Red River, Army Materiel

Commander Paul Kern from headquarters visited the complex and shortly thereafter issued a proclamation to implement lean throughout the entire Army Materiel Command.

In late July, Hart spoke about the early efforts at Red River with *Manufacturing News* editor Richard McCormack, shortly before heading off to his next assignment at U.S. Army Headquarters in Heidelberg, Germany, where he will be the assistant deputy chief of staff for logistics. Here's what he had to say.

Q: Why has your depot adopted lean manufacturing?

Hart: Because it's a program that can save a depot. Depots have been here about 60 years and we really have not stayed in touch with how industry has moved to more efficient ways of production. We came across lean from the Warner-Robins Air Force Base. We went there and talked to the workforce, which mirrors our workforce, and made the assessment that if it can work at an Air Force depot it can certainly work

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Army Adopts Lean...*(From page one)*

Robert Chadwick, the General's staff group director in charge of the effort at headquarters in Alexandria, Va.

The plan is to take lean concepts into the production processes in the field, achieve and publicize successes, broaden the program, develop lean champions and move it beyond the shop floor into administrative and logistics functions. "We're getting the senior leadership excited about its potential and at the employee level there is success," says Chadwick. "So there is a lot more ownership than if it had been dictated from on high."

AMC runs industrial operations in aviation, automotive, communications, electronics, chem-bio, missiles and repair and overhaul. It produces ammunition and provides operational support to warfighters. Most of its industrial base was built during World War II. The command believes there is a good fit between an integrated lean manufacturing operation and the fast-developing all-digital Army.

"Gen. Kern is not approaching this like it's the latest management fad," says Chadwick. "He's not going to sprinkle it on a few PowerPoint charts and present it at the next conference. He'll hold his leadership accountable. He'll resource it. He'll educate and train people to carry out his vision. He will reward it and incentivize it in the organization. We will want our metrics to capture the results of these initiatives and efforts to know if we're getting a return on our investment. He's prepared to lead it in addition to manage the process."



AMC Commanding General Paul Kern earned masters degrees in mechanical and civil engineering from the U. of Michigan in 1973.

Lean Takes Root...*(From seven)*

at an Army depot.

We're starting off in the crawl-walk-run stage. We took it upon ourselves to implement lean in our recapitalization program for vehicles used by combat engineers in the field to see if we could help save money and improve the production flow. We are also leaning various other shops where the axles and engines are done and the cabs rebuilt. We want to lean that whole process from the front door to the back door.

Q: Is it cheaper to rebuild a vehicle from the ground up than it is to buy a new one from a

ISO's Growth...*(From page seven)*

The number of companies and organizations that received ISO 14000 certification for environmental performance rose by 61 percent last year, or by 13,868, to a total of 36,765. "This is by far the highest increase recorded" since the ISO introduced the standard in 1994, says the group. Japan had the highest number of new environmental certificates with 2,541; followed by the United Kingdom with 1,042; Sweden with 519; and the U.S. with 406.

Countries with the leading number of ISO 14,000 certifications at the end of 2001 were:

Japan, 8,123;
Germany, 3,380;
United Kingdom, 2,722;
Sweden, 2,070;
Spain, 2,064;
United States, 1,645;
Australia, 1,370;
Italy, 1,295;
France, 1,092;
China, 1,085;
Canada, 801; and
Brazil, 350.

contractor?

Hart: The subcontractors and OEMs that used to produce them are no longer around or are no longer tooled to do it. They say, "If you want us to build a whole new fleet of combat engineer vehicles, we'll charge you a good price." The Army costed it all out and we basically can provide a like-new product for roughly half the price.

Q: What are your immediate goals with your lean implementation?

Hart: Our goal is to drive the recapitalization cost down by 10 percent each year until we have eliminated all waste and gotten as close as we can to perfection. It's a big challenge for the government because we have a tendency to be wasteful, but lean brings a new perspective and a new rigor to the process. We're really excited about it.

Q: Does the lean philosophy of empowering workers fit into the military command-and-control mentality?

Hart: I think it does. I have been in the service for about 27 years and early on in our shop operations and motor pools we used the idea of 5-S. We would inspect to those kinds of standards, but over the years we've gotten away from it.

The military after World War II set the trends and industry used to come to the services to look at how we were organized. But through the Cold War, we became sluggish, very large and bureaucratic and we never broke out of that. Even though it's been over 10 years since the end of the Cold War, we're all still trying to shed a lot of that legacy bureaucracy.

So I would tell you we used to do lean, but it wasn't called lean in those days. We used to focus on having everything in its place, now it's just you put all kinds of tools and equipment on the floor and they aren't used and they accumulate. There is no rigor in the system.

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MANUFACTURING NEWS (ISSN No. 1078-2397) — **www.ManufacturingNews.com** — is a publication

of Publishers & Producers, P.O. Box 36, Annandale, VA 22003

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Price: \$495. Fax Price: \$595. Frequency: Twenty-three times per year.

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Lean Army... (From page eight)

Q: Have you assessed the benefits to adopting lean?

Hart: The nice thing that lean has brought to this depot is the value-stream mapping and analyzing our process. The Army is big on process — how do you get from A to B to C. But we've never looked at it in our industrial base and that is what is great with lean. It's putting the discipline of reviewing the process back into our industrial base.

For instance, how do we integrate with the Defense Logistics Agency for parts? How do we integrate with the OEMs for technical support for parts? The value-stream mapping brings all that to light.

At Red River, all the production facilities were built 60 years ago and they were based on the batch-and-queue-process. We're finding that with lean we're finally moving things around on our production line so that we have the blasting and the cleaning and painting co-located to eliminate the travel of parts. We had bumpers and axles that would leave the production line two or three times to go out and be painted. Brakes would leave the production line to be specced.

On the combat engineer vehicle, we found the engine came and went from the production line a few times. The axles came and went. Now we've co-located the engine shop and the axle production shop along the production line so it all feeds into a one-piece flow. It's been monumental.

Q: Did the Army Materiel Command adopt lean based upon your experience?

Hart: I would like to give Red River the credit. There is no doubt and no argument that we were the first Army depot to implement this program. When Gen. Kern at AMC visited us in the spring we briefed him on our plans. Ever since then, he's had folks come down to look at it. So I'd like to say Red River got the ball rolling, bringing it to the attention of the Army Materiel Command.

Q: What do you do next?

Hart: We put together a planning cell of 10 people called the Red River Production System team and they're just now putting the plan together with milestones targeting each area. We're putting together a schedule and over the course of the next five years we'll start the process. We have about 12

rapid improvement events scheduled this year and we've completed seven.

A lot of folks think you can read the book *Lean Thinking* or attend a seminar, learn some of the lingo and then go back and apply it to your operation. I will just tell you at a U.S. Army depot, you have got to have a sensei, a mentor down here. So we hired Simpler [Consultants]. If you're left to your own devices to do it, you can't do it because the commander, who is me in my case, can't spend the amount of time necessary to be the change agent on the floor. The duties and responsibilities that the commanding officer has here means you're on the road regularly.

So a sensei like Simpler gives you the focus to keep you on track and provides the coaching and mentoring that you need to keep the process going. You have to keep someone like them involved because it forces the depots into maintaining some rigor in the system and not allow it to fall by the wayside.

We have an older workforce and turnover is a fact of life. It's a constant training process to bring on new people. You train the workforce on it and then you have to have someone prepared to step up and be that next supervisor. It's a

"Change imposed is change opposed. With lean, you don't come in and impose the change on the workforce."

challenge.

Q: Do you think lean is going to be tough to institutionalize?

Hart: Once they start seeing the tangible savings and benefits and efficiencies, I think it will catch on. I will tell you I think this will eventually spread to the tactical Army in the field units because we want to lighten the logistics tail that has to support our combat troops. You can do a value-stream map as part of your mission analysis and it can help you lean how much stuff you have on airplanes and ships that is going to the warfighter. With the current philosophy in DOD, I think there is going to be a hard push to get this ingrained.

Q: We've heard so much about the military's revolution in business affairs, but efforts to improve efficiency within the military seem to peter out every few years. Will the same fate hold true for lean?

Hart: What I like about lean is the grass roots buy-in. Change imposed is change opposed. With lean,

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Lean Army... (From page nine)

you don't come in and impose the change on the workforce. You tell them that we'll provide the resources, the time, the tools and you tell us what's the smart way of doing this. What makes good sense? How should it flow? How should it be set up? You get that buy-in.

Once you get that buy-in on the grass roots level, the tough nut is to get the buy-in at the management level. That's been our experience here. I've got shop floor workers coming up saying — "Hey Colonel, I know we're doing a rapid improvement event in August, but we're already looking at how we can make this better now." So it's getting to be contagious.

Q: Is there another business or production system you've seen in your career that has the potential for such an impact?

Hart: No. There have been a lot of initiatives over the years, but nothing like this. It dovetails in with the current initiative with the chief of staff of the Army which is called Army Transformation, which is the notion of making our fighting force lean and mean and ready to go. I would tell you that for the Army industrial base I think lean is a viable solution to achieve the end state that the senior leaders of the Army are looking for. It's great stuff; we love it.

Q: What will create the ignition point throughout the Army?

Hart: As I told the workforce here, you're either making dust or eating dust. People are going to look at you and determine if you're making dust — in other words are you moving out with lean and do you have the metrics to show the improvements, the savings and so forth? I think they'll accomplish that, but the skeptics inside the Beltway will want to see the proof. That's going to be the challenge, which is to implement lean and be able to document the efficiencies that we're getting out of it.

There have been skeptics who say you're getting things cleaned up and all your tools are in the right place, but are you really saving anything? Right now, our savings are identified on paper because we're just in the infancy with it, but I think it will come to fruition in the next 12 to 18 months and then the Army will say this is powerful stuff.

Q: What are your initial goals?

Hart: The goal is 10 percent improvement and I think that is going to be an easy target to achieve. If we come out in the black at the end of the fiscal year, we can do bonus payouts to the workforce, so lean will help them drive toward achieving those bonus payouts.

Q: What would you recommend for other depots?

Hart: You need to read *Lean Thinking*, then find yourself a firm like Simpler that is on site on the ground and part of your team. If you think you can read the book and attend the seminar and do it yourself, you won't achieve it. You have to hire experienced mentors who have truly walked the walk — been in an organization that has implemented it and worked in the production area. There are too many white-collar contractors who might come in who've read the books and taken some training courses, but when they get in front of wage-grade mechanics and production workers and are talking to them about how they can improve their process, if they don't understand manufacturing and production processing, those workers won't have any faith in you. My worker bees who have been through it have to say these guys know what they're talking about — I can tell they have worked on shop floors before. They know because all shop floors are basically the same.

Q: How important was the base closure threat to propelling you into this?

Hart: That was the big motivator. One of the principles of lean is to find something to grab onto as a reason for doing lean, and that was our reason. The DOD BRAC initiative is now called the Efficient Facilities Initiative. That tells you something right there. This time around, the press release says if you're not efficient, you're suspect and you've got to justify your existence or we're going to chop you. So we looked at it and said, "Hey, lean will help us be efficient." So the goal here is to make a compelling case that we're the most efficient of the Army's five depots. I said, "Folks, we have to come out on top of this thing."

Q: Since you are leaving your post, is your successor going to be an effective change agent? Is this a problem with the military moving people in and out?

Hart: It can be, but my deputy and I did a battle handoff a few months ago. He's a civilian so he is the continuity here. He picked up the mantle to be the lean change agent along with a couple of other folks down the line. My replacement has been on board transitioning with me and there is no doubt in my mind that he is a big believer in this too. I have tried to remain relentless keeping people focused on it.

*'Summertime,
And The Livin' Is Easy...'*

The editorial staff of Manufacturing News is taking its annual break. The next issue will be published in late August.