

# MANUFACTURING & TECHNOLOGY NEWS

COVERING INNOVATION, GLOBALIZATION AND INDUSTRIAL COMPETITIVENESS

PUBLISHERS & PRODUCERS, P.O. BOX 36, ANNANDALE, VA 22003

PHONE: 703-750-2664 FAX: 703-750-0064 URL: WWW.MANUFACTURINGNEWS.COM

Wednesday, October 31, 2007

Volume 14, No. 19

## Washington, D.C. Defense Mfg. Group Achieves 'Critical Mass'

A Washington, D.C. interest group aimed at promoting defense manufacturing technology issues has attracted a robust group of enthusiastic participants. The National Defense Industry Association's Manufacturing Division is pursuing an agenda aimed at fortifying the U.S. defense industrial base, and it is filling a niche that has long been vacant.

"The folks who are involved have a passion for the topic, which is the right group to be with," says NDIA Manufacturing Division chair Edward Morris, director of hardware and manufacturing on the Lockheed Martin Corp. Engineering and Technology Team. "When I was approached to help start a manufacturing committee in NDIA,

I said, 'Yeah, that is the right organization to do this.'"

Richard Engvall, former manufacturing executive with Westinghouse and recipient of the 2002 multi-association "Manufacturing Excellence Award" said: "It's the only effort in town pushing anything."

There are now about 40 people

involved in the NDIA Manufacturing Division addressing issues such as budgetary support for the Defense Mantech program, new DOD-wide manufacturing R&D initiatives, manufacturing workforce recruitment and retention, supply chain management, public policy support for manufacturing, and the development of Manufacturing Readiness Levels (MRLs).

"Our objectives are to advocate national support for defense manufacturing, promote defense manufacturing excellence, support

*(Continued on page four)*

## Small Manufacturers Must Concentrate On Global Strategies

Small- and medium-sized manufacturing companies in the United States are not doing a very good job of taking advantage of fast-growing overseas markets, according to RSM McGladrey. Companies that have a well-defined global strategy, which includes both sourcing products from overseas and selling there as well, are experiencing revenue growth in their foreign operations. Companies that haven't adopted such a strategy aren't doing as well.

In its annual survey of small- and medium-sized

manufacturing companies, RSM McGladrey found that the bigger the company, the greater the chance of it having a global strategy. Fifty-nine percent of companies with revenues of more than \$500 million said they had a global growth strategy, with 56 percent of them indicating they were experiencing revenue growth through exports. Among the mid-sized companies, 47 percent said they had a global growth strategy, with 42 percent saying they had revenue growth in foreign markets. Among the smallest manufacturers with less than \$15 million in sales, 41 percent said they had a global strategy, but only 33 percent were seeing revenue growth.

"The smaller the company, the more difficult it is to export and import globally," says Thomas Murphy, RSM McGladrey's executive vice president of

*(Continued on page eight)*

# Surge Of Foreign Acquisitions, M&As, Keeps DOD Busy

The Department of Defense is busy analyzing foreign acquisitions of U.S. companies to determine if they pose security risks to the country. As a member of the federal Committee on Foreign Investment in the United States (CFIUS), DOD reviews transactions that might impact national security. In 2006, the number of cases skyrocketed to 113, almost double the number in 2005 (65) and up from 53 in 2004 and 41 in 2003. The value of the foreign acquisitions reviewed by CFIUS is also growing substantially, worth \$186 billion in 2006, up from \$29.5 billion in 2005, \$27.3 billion in 2004, and \$9.3 billion in 2003.

Under CFIUS rules, foreign companies buying U.S. firms do not have to notify the federal government of their pending purchase, but the federal government can initiate its own 30-day review, followed potentially by a 45-day investigation if national security threats exist and are unresolved, according to Gary Powell of DOD's Office of Industrial Policy, which is in charge of DOD's conduct of CFIUS reviews.

Between 2001 and 2006, companies based in the United Kingdom led all other countries in the number of acquisitions of U.S. companies reviewed by the federal government for military sensitive technologies. Over that same period, the most number of CFIUS cases (73) involved U.S. companies in the area of information technology and command, control communications and intelligence, followed by electronics (54), aviation (43), materials (25) and commercial (25).

DOD also evaluates domestic mergers and acquisitions in the defense industry to determine what effect they will have on the defense industrial base. The so-called Hart-Scott-Rodino reviews are triggered when mergers pass \$58-million (although they can be less) and involve major defense suppliers

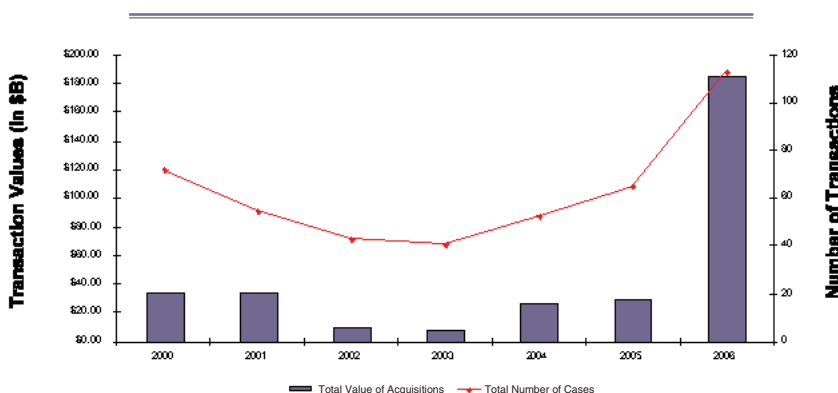
with the potential for significant impact on the Defense Department. The number of mergers assessed by Powell's office experienced a brisk upsurge in 2006 when they reached 43, up from 23 in 2005 and 29 in 2004. The value of the transactions is also on an upward trajectory, totaling \$82 billion in 2006, up from \$31 billion in 2005 and \$14 billion in 2004.

L-3 Communications was the leading company purchasing other firms, with a total of 18 acquisitions

examined by the Defense Department from 2003 to 2006, followed by General Dynamics with 16, Lockheed Martin with nine, Carlyle with four, BAE Systems with three, and the following nine companies with two apiece: EDO, GKN, Valero, Armor Holdings, ATK, Curtiss Wright, QinetiQ, Smiths Aerospace and Boeing.

Since 1994, DOD has reviewed 300 defense mergers and acquisitions worth more than \$600 billion. Forty of these transactions required some form of remedy and eight transactions were not consummated due to antitrust agency and DOD concerns, says Powell.

## CFIUS Transactions Are Increasing



## CFIUS Acquiring Country Analysis Top Ten For 2001 To 2006

Country	Number of Acquisitions	Percent of Total
1. United Kingdom	121	33.7
2. France	34	9.5
3. Canada	29	8.1
4. Germany	17	4.7
5. Japan	15	4.2
6. Israel	15	4.2
7. Australia	14	3.9
8. Singapore	11	3.1
9. China	7	1.9
9. Belgium	7	1.9

(Source: Office of Industrial Policy, U.S. Department of Defense)

# Pentair's Implementation Of Lean Should Propel Its Stock Price Upward

**Pentair Corp., the diversified industrial manufacturing company based in Golden Valley, Minn., has crossed an "inflection point" due to its successful embrace of the lean management philosophy, according to Clifford Ransom, independent institutional financial analyst with Ransom Research Inc. The company's share price, which has declined for the past three years, should start a steady upward march as investors begin to see the results of its strategy.**

The company's profits rose by 67 percent during the third quarter of this year, beating Wall Street expectations. The company on October 23 reported income of \$58 million (\$0.58 per share) on sales of \$838 million (up 8 percent), compared to income of \$34.8 million (\$0.34 per share) a year earlier.

"I see great opportunities for Pentair to prosper as it accelerates its internal growth, as it continues to consolidate its two targeted industries and as it proves out its dedication to lean," writes Ransom to his clients. "As investors, we only have to look at Pentair's success with lean in Enclosures to understand that success in Water is almost inevitable."

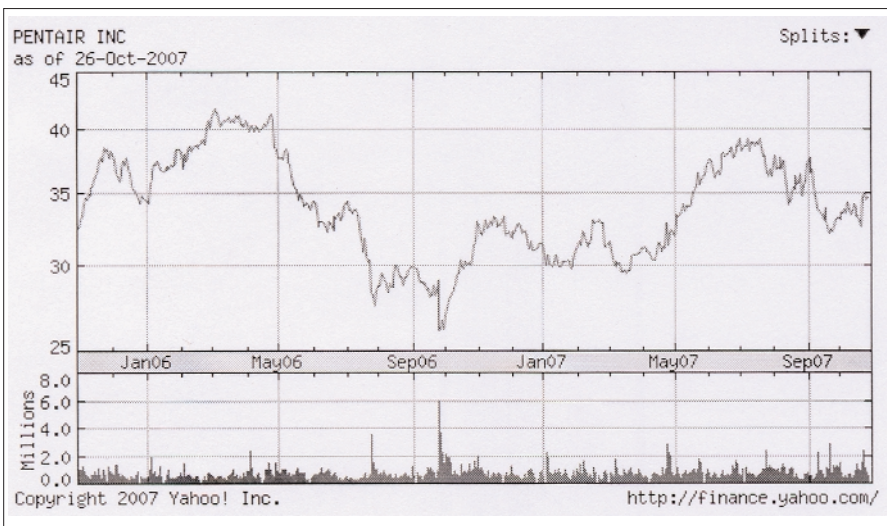
The company said its water business was buoyed by strong international demand that offset the weak U.S. housing market. It also had strong sales in its water division to industrial, commercial and municipal customers, which should continue in 2008.

The company's share price has started moving upwards in the week after its quarterly report, to about \$35 per share. Ransom says Pentair should be earning \$3 per share by 2009, "at which time it seems reasonable to assume that the enterprise can re-gain a premium industrial multiple of 17 times earnings, which is a price/earnings ratio that the shares have garnered at least once a year since 1993. The resulting stock price of \$51 would be, in my estimation, a minimum target over the intermediate term."

At a market cap of \$3.3 billion and 1.8 percent yield, Pentair "has the potential to appeal to a broad spectrum of investors," Ransom writes. "The stock is cheap enough to appeal to value buyers, but the

turnaround and growth story could just as easily appeal to GARP investors."

The company's embrace of lean should continue to help improve its operations, particularly in its water business. "Those improvements should hearten investors, so watch inventory turns and the ratio of working capital to sales as the typical precursors," writes Ransom. By reporting income of more than \$0.50 per share for the quarter ending in September, Pentair has "gotten a head start out of the gate to recovery of Wall Street credibility."



## Energy Department Puts \$197 Million Into Carbon Sequestration Demo Projects

The Department of Energy (DOE) has awarded \$197 million in contracts to three carbon sequestration projects that will test the capability of storing millions of tons of carbon dioxide in deep saline reservoirs located across the country. Participation from 27 states as well as three Canadian provinces will allow researchers to vary the basins to be injected and see how the different regions are affected by storage. Winners of the contracts are the Plains Carbon Dioxide Reduction Partnership led by the Energy and Environmental Research Center at the University of North Dakota; the Southeast Regional Carbon Sequestration Partnership led by the Southern States Energy Board; and the Southwest Regional Partnership for Carbon Sequestration led by the New Mexico Institute of Mining and Technology. The total value of the 10-year projects including partnership cost share is \$318 million.

— HELEN HILIOS



## NDIA's Manufacturing Division... (Continued from page one)

promising technologies and processes and conduct industry forums focused on defense manufacturing," says Morris. "Because it's a volunteer army, the scope and depth of what we can take on is based on how many volunteers we have. We have a desire to be more and more successful in making a difference and continue to grow the group. We have crossed critical mass and so we are adding more capability with more people getting involved."

Defense manufacturing as a discrete subject worthy of industry, government and academic support has had a difficult time finding a solid advocacy group, mostly because of the nature of manufacturing itself.

Those who are involved in manufacturing tend to focus on "getting the product out today," explains Morris. "We are focused on whatever we have to do to solve the fire-drill issues today, which tend to be all consuming, and that means there is little time to think about tomorrow and beyond," he says. "We suffer from that sort of short-term vision and there is a clear need to think way beyond the horizon."

The defense manufacturing technology community tends to be a "bill payer" in the DOD budget process, Morris adds. This has been a recurring problem for the Mantech budget and efforts to fund the development of revolutionary manufacturing technologies and processes that could be applied throughout the military services and across military platforms.

The group wants to build an awareness campaign describing the importance of manufacturing to the affordability and sustainability of new weapons systems. Quoting former Lockheed Martin CEO Norm Augustine, Morris says: "If we continue on some of these trends we will have one airplane for all the pilots to fly....The objective of affordable weaponry for the warfighter is paramount."

Globalization is part of the impetus behind the group's creation, though it's not part of its charter, per se. As production capacity shifts offshore, a new world order is

unfolding for the entire U.S. defense enterprise. Companies must take advantage of lower-cost sources of foreign supplies, but doing so means increasing national security vulnerabilities. An underlying issue is whether the United States can remain a military superpower without having a robust industrial base to support it. The NDIA Manufacturing Division does not directly address this issue, but it's on people's minds.

More information on the division, including its quarterly meeting scheduled for Nov. 14 and 15 in Washington, D.C., can be found at [www.ndia.org](http://www.ndia.org) by clicking on the "Divisions" tab on the left side of the home page.

### NDIA Manufacturing Division Executive Committee

- **Barry Bates**, Supporting Director, Vice President of Operations, NDIA
- **Kevin Fischer**, Chair, Technology for Manufacturing, Manager of Manufacturing Technology Pursuits, Rockwell Collins
- **Jim Gucinski**, Chair, Reserve Battery Group, Program Manager, Tiburon Associates
- **Mark Huston**, Immediate Past Chair of NDIA's Manufacturing Division, Director, Global Custom Solutions, Kennametal Inc.
- **Teri Lesicko**, Manufacturing Div. Member, Program Manager, U.S. Navy DSTARR Program, Sage Systems Technologies, LLC
- **Ed Morris**, Chair, Manufacturing Division, Sen. Manager Advanced Manufacturing Technology, Lockheed Martin
- **Des Newman**, Chair, DOD Supply Chain Management, President and CEO, Newman Technologies Inc.
- **Ron Perlman**, Chair, Defense Manufacturing Communications, Partner, Buchanan Ingersoll & Rooney
- **Adele Ratcliff**, Manufacturing Division Member, Oversight Executive, OSD ManTech Director, ODUSD AS&C/OTT
- **Bruce Roulstone**, Supporting NDIA Director, Director of Operations, NDIA
- **Rebecca Taylor**, Manufacturing Division Member, Sr. Vice President, National Center for Manufacturing Sciences
- **John VanKirk**, Vice Chair of the Mfg. Division, Executive Director, NCDMM
- **Ralph Young**, Chair of the Mfg. Workforce, Vice President, Contracts & Human Resources, FN Manufacturing LLC

## Indian Outsourcing Firms Face Rupee Challenge

The continued strengthening of India's rupee is beginning to reduce the economic incentive to outsource services to India, according to Alan Rodger, a research analyst at the Butler Group. The rupee's rise of 12 percent against the dollar over the past 12 months is starting to impact outsourcing providers in India, and companies served by them "will be worse affected," says Rodger. "The Indian rupee's going from strength to strength will provide a challenge to India-based outsourcing providers when it comes to the renewal of contracts with western companies," he says. "But the high quality of service and talented India workforce, along with continued improvements in India's infrastructure, continue to stand India in good stead."

Even if the rupee continues to grow in strength, Indian outsourcing companies like Tata and Wipro should be able to minimize price increases. "Cost should never be the only reason for outsourcing any services, but it is of course a major contributor to any decision to deliver from overseas, and a rise in prices of this nature may make some businesses question the financial advantages," says Rodger. "Even if prices should rise marginally, when these contracts are up for renewal, it should be remembered that the quality of the talent available in India remains extremely high."

# DOD's Top Tech Official Tells Secretary Gates To Boost R&D Spending

Reduced spending on research and development by the Department of Defense threatens the nation's future national security, warns the Pentagon's top research official. The Pentagon's budget increased by \$42 billion for fiscal year 2008, but its spending on science and technology — the underpinnings of future capabilities — decreased by \$311 million.

"The Department is coasting on the basic science investments of the last century and is losing the force multiplier advantage conferred by harvesting those investments," writes John Young, who just left the position of Director of Defense Research and Engineering to become head of the Pentagon's Advanced Technology and Logistics division. "The last 15 years (since the demise of the Soviet Union) has seen the Department pull back substantially from many science areas."

Yet it has been the country's robust investment in science and technology that made the United States a superpower. Such a position could be threatened because the current level of investment, which has not increased since 2002, "may be inadequate to meet the imposing security threats that challenge our nation and may not be adequately robust to take advantage of key scientific and technological opportunities that offer breakthrough advantages to our warfighters," Young wrote in a recent memo to Defense Secretary Gates.

Spending on science and technology represents only 2.2 percent of the agency's total budget, not nearly enough given the rising costs of technology, technical manpower and challenges the military is facing. Young says the science and technology investment should be 3 percent of DOD's budget, as it was in the 1960s, when the foundation of the modern military machine was created with DOD-driven advances in electronics, space systems, materials, aircraft and weapons.

He recommends that a minimum additional investment be made in 2009 of \$1.2 billion in 20 targeted technology areas, and that an additional \$8 billion be made in them over the next five years.

This additional funding is necessary because the overall investment being made by the United States in the physical sciences has also declined. Without the Bell Labs' type of research being conducted, there are

fewer breakthroughs in the commercial sector that the military can exploit. Regulations are also stifling investment in research, says Young.

"The reality is that DOD is the predominant source of funds pursuing basic and applied research in the physical sciences," Young wrote to Gates. "There are S&T areas that should receive increased investment in the current program."

DOD's total S&T request for 2008 was \$10.8 billion, but in constant dollars, that is about what the nation was spending during the Reagan administration. "Equally concerning is the fact that the fraction of S&T investment devoted to foundational science, where the underpinnings of game-breaking warfighting advances usually occur (such as night vision, global positioning, precision targeting and low observable coatings), has slipped to less than 15 percent of the S&T budget to accommodate the intense pressure for advanced development," writes Young. "The last decade of growth in acquisition and advanced research and development has drawn upon a reservoir of knowledge and technology developed by S&T investment — analogous to draining a pool. In the rest of the world, there has

*(Continued on next page)*

## TVA SUBMITS APPLICATION TO BUILD NUCLEAR PLANTS

The Tennessee Valley Authority (TVA) and the NuStart Energy consortium have submitted the second application to the Nuclear Regulatory Commission for the construction and operation of two new Westinghouse AP1000 nuclear power plants. The reactors would be built at TVA's Bellefonte site near Hollywood, Ala., and serve as the reference application for future utilities applying for construction permits for the AP1000.

The submission of the license application "is a necessary and monumental step toward the rebirth of nuclear power in the United States," says Department of Energy deputy secretary Clay Sell. "This application should set the regulatory groundwork for dozens of AP1000 reactors to be built."

NuStart Energy LLC is a consortium that includes Constellation Energy, Baltimore, Md.; Duke Energy, Charlotte, N.C.; EDF International North America, Washington, D.C., the U.S. subsidiary of the French electric utility; Entergy Nuclear, Jackson, Miss.; Exelon Generation, Philadelphia, Penn.; Florida Power & Light, Juno Beach, Fla.; Progress Energy, Raleigh, N.C.; South Carolina Electric & Gas, Columbia, S.C.; Southern Company, Atlanta, Ga.; and the Tennessee Valley Authority, Knoxville, Tenn.

Four other NuStart member utilities have announced they expect to submit applications to the NRC by the end of 2008 that will reference TVA's Bellefonte application for the AP1000 reactor design, "ensuring standardization of the design and saving review time and resources," says DOE. "In addition, using the success of NuStart as a foundation for developing applications, three other NuStart members have announced plans to submit license applications for different technologies."

## **MORE DOD R&D...** (From page five)

been a resurgence of S&T investment. Global trends in the education of scientists and engineers clearly demonstrates the will of some nations to pursue science and technology and clearly provide ominous warnings about the future military and commercial capability of those nations. Indeed, with talent and funding, nations such as China and India are likely to develop science and technology capabilities and knowledge that rival the U.S. in the long term."

Young recommends that substantial increases in funding be made in 20 areas of science and technology. But even these areas he outlined in his memo to Gates "represent a partial list of priority areas for investment of additional funds for technology development and mission capability demonstrations," he writes. "Many additions or alterations are possible.

"Choosing to fund the proposed initiatives in lieu of current programs is not a good trade. Marking trades solely inside the existing defense S&T program will force the nation to take risk in other carefully evaluated and budgeted areas. Unfortunately, risks taken in the S&T program are impossible to quantify, but such risks do impact America's future security. History has demonstrated that robust defense S&T funding has produced military capabilities which have been vital to this nation."

Here are the 20 new science and technology initiatives Young proposed to Gates; the first funding figure is for 2009, the second is for 2013:

**Fundamental Sciences** — \$300 million to \$500 million: DOD must "dramatically re-energize and re-invigorate the nation's foremost scientific minds, especially those in early- and mid-career to focus on discovery, innovation and synthesis in the physical and analytical sciences most crucial to our national security," Young explains. He recommends new scientific exploration in the areas of biosensors, biometrics, nano technology, advanced electronics, nanoelectronics, materials, nanosensors, photonic crystals, plasmonics and computing sciences.

**Active and Conventional Armor Technology** — \$50 million in 2009 and \$50 million in 2013: The current investment in both passive advanced armor materials and active armor technology is "inadequate," says Young. The huge supplemental appropriations that have been made to provide armor to troops and equipment in the field have been spent on "heavy solutions." Yet the development of new fibers "hold the promise of significantly enhancing and lightening armor," says Young. "DARPA efforts have identified approaches to produce titanium at dramatically reduced prices. It is not clear that we will succeed in developing a class of material armor that can withstand future threats."

**Defeat of Speed-of-Light Weapons Systems** — \$50 million to \$100 million: Lasers, microwaves and other radio frequency directed energy weapons are gaining in popularity around the globe and are becoming increasingly lethal. "The Department needs to be working on active countermeasures to defeat and

defend against the use of directed energy weapons on U.S. forces and systems," writes Young. "To do this, the Department needs to ensure that the investment in U.S. offensive systems is adequate to allow us to design and test defensive countermeasures against these systems...including new classes of materials and designs to mitigate directed energy effects."

**Adaptive, Interactive, Full Immersion Training of Soldiers and Marines** — \$50 million to \$100 million: "The Department needs to harness the work coming out of research in cognitive science, human-system interfaces, multi-player gaming, immersive environments, neural sensing and related disciplines to create virtual, integrated training capabilities that allow Soldiers and Marines to train at the individual and squad level in absolutely real conditions that react to their actions," says Young. "One of the great advantages of this is that lessons-learned experiences can be quickly incorporated into the training (same day as the event) and start spreading knowledge of the tactics and counters to U.S. Soldiers and Marines faster than the enemy can to his troops."

**Metamaterials** — \$30 million to \$50 million: China is quickly pursuing "disruptive" man-made materials with "negative index of reflection and refraction" used in optical and microwave lightweight radar systems, says Young. China's work in this area has increased "exponentially. In 2005 and 2006, Chinese researchers published more than 250 papers each year after "percolating along at under 50 papers per year," he writes. The current level of Chinese research "is probably the tip of the iceberg." In addition, the Chinese papers "indicate maturing to the experimental phase — ahead of U.S." The United States "needs to pay more attention and carry the applied research into technology demonstrations for signature reduction."

**Information Warfare** — \$100 million in 2009 to \$200 million in 2013: "DOD has work to do in this area," writes Young. "The Defense Department needs to make substantial investments in information warfare technology to challenge the security of adversary weapons, sensors, platforms, networks and databases."

**Information Assurance** — \$100 million to \$200 million: "Just as information warfare will become a weapon system for DOD, the Department must anticipate our adversaries' employment of information warfare tools against all of the systems and assets in the DOD inventory."

**Networking Technology** — \$40 million to \$70 million: "The DOD needs funds to explore the adaptation of commercial technology to military uses, to influence the development directions of commercial technology and to drive the unique networking technologies required for a mobile military force relying on networks without fixed infrastructure."

**Organization, Fusion and Mining Large Data Sets for Enhanced Decision Making** — \$40 million to \$60 million: The growing use of sensors is generating dramatic growth in data, all of which has to be processed, organized, fused, tagged and presented in a way that can be understood.

(Continued on next page)



## More DOD R&D... (From previous page)

**Energy** — \$50 million to \$100 million: Total energy costs for DOD are skyrocketing and deployed forces have limited use of equipment due to a lack of range and the need to transport fuel over long distances. The department needs to pursue research in “organic, fossil-fuel free operating base power.”

**Manufacturing Science Technology** — \$50 million to \$70 million: DOD currently makes “modest” investments in process technologies for materials and electronics. “However, the Department has only a small new initiative in developing new manufacturing techniques and concepts which could be adapted across different product lines and utilized for efficient low-rate production processes,” writes Young. “A larger investment is needed to develop the new processes leading to affordable technology development. This initiative could be funded in either the Services or the Office of the Secretary of Defense.”

**Software Development Technology** — \$40 million to \$70 million: DOD continues to struggle with software for all of its weapons systems and in its command and control functions and needs to develop “ultra-large scale system integration” techniques, interchangeability and interoperability.

**Combating Weapons of Mass Destruction** — \$50 million to \$100 million: “The nation does not always focus on a threat until it unfortunately becomes real,” writes Young. The current level of progress in this area is “slow and does not adequately drive innovation and capability to offset the severity of the threat, especially with respect to remote detection and tracking of fissile materials.”

**Neuro-Ergonomics** — \$30 million in 2009 to \$50 million in 2013: New developments in the neurosciences need to be applied to the designs of systems for interfaces, training and education.

**Advanced Medical Research** — \$100 million to \$150 million: Research is needed in tissue regeneration, traumatic brain injury and post-traumatic stress disorder. “Non-invasive sensing of brain activity in real time without placing sensors directly on the head [could] provide insight into cognitive capacity and learning potential,” writes Young.

**Autonomous Operations of Networks of Unmanned Vehicles in Complex Environments** — \$100 million in 2009 and \$100 million in 2013: “The growing collaborative use of unmanned vehicles in all environments (ocean, air and ground) in both open and urban conditions requires a degree of autonomy and coordination that is significantly more difficult than the open, freespace, single system airborne environment.”

**Disparate Sensors, Communications and Spectrum Management** — \$500 million: This effort includes developing

covert sensors for “persistent surveillance.” Sensors with reduced bandwidth requirements, micro-power sources and secure networks are being deployed in Iraq, “but a more benign test environment is needed for engineering experimentation,” says Young.

**Biometric-Based Tactical Threat Identification Demonstration** — \$190 million: “In the Global War on Terrorism, U.S. forces need the ability to rapidly and accurately identify threat individuals both in close proximity and at a distance. Biometrics such as fingerprints, iris scans, DNA, facial imaging, handprints, body profile and voice recognition can produce robust intelligence and also massive databases which must be cross correlated. These systems need to be adapted for overt and covert military use to provide low cost, portable, hand-held or manpackable, netted biometric identification systems.”

**Monitoring the Marine Environment for Mammals During Active Sonar Operations** — \$150 million: Currently the Navy only uses visual means — looking from ships and planes to spot marine mammals — before conducting sonar operations. “There are a number of emerging technologies which coupled with our UAVs and sea gliders could enable us to much more effectively monitor the water for mammals and observe any deviations to their normal behavior during sonar ops.”

**Specialty Materials For Airships** — \$30 million: UV resistant skins and coatings “are required to enable development of long endurance airships and composite UAVs.” The goal is to develop a full-scale sample of skin materials “that meet the criteria of three ounces per square yard or less and the strength and other properties required for a high-altitude airship or UAV.”

## Growth Of China's Trade Surplus — Wow

China's manufacturing trade surplus with the entire world is growing at a phenomenally fast rate, from \$31 billion in 2001 to \$277 billion in 2006 and a projected \$400 billion for 2007, according to data compiled by Charles McMillion, president and chief economist at MBG Information Services. “China's rocketing surpluses in global trade and current accounts are particularly remarkable in the context of 11.5 percent GDP growth and soaring deficits in commodities such as fuels,” which will approach \$78 billion in 2007 and iron ore (\$50 billion), says McMillion.

For years, China was posting large trade surpluses with the United States but deficits with other nations. But that has changed “dramatically,” says McMillion. “China imported a large share of component parts from other countries, mostly in Asia, leaving its manufacturing sector to focus on ‘processing’ these parts into final goods. This ‘process trade’ left China's manufacturing sector with only a relatively small percentage of value-added in many modern products and only a small surplus in its global trade.”

The trend is best expressed in China's trade in non-electrical machinery and computers, where the country recorded a \$7 billion deficit in 2001 and a surplus of \$77 billion in 2006. That number should “far exceed \$100 billion in 2007,” says McMillion.

## *Small Manufacturers Need To Go Global...* (Continued from page one)

manufacturing and wholesale distribution.

“Companies need to take a look at that strategically because if they’re not engaged globally, they’re missing an opportunity.”

About 30 percent of respondents indicate they are moving production and services offshore to serve international markets, according to the survey results. “More than half say they will move neither.”

Companies have to confront barriers to international growth such as financing, finding local expertise and partners, protecting intellectual property and dealing with language and cultural issues. “They have to figure it out because the way this thing is going, it’s going global and they have to think globally,” says Murphy, whose accounting firm specializes in services to mid-sized companies.

The global shift might not bode well for U.S. manufacturing workers in some industry segments “because as a result there may be less people working on making products here,” says Murphy. “But if you can take advantage of the opportunities that new markets provide to you, you can increase your volume. Volume doesn’t solve all problems, but it helps. As new markets become accessible and as the standard of living in those countries grow, there is more demand for U.S. products.”

U.S. manufacturing companies have done a good job of cutting costs and improving margins, but they have not done as well improving revenue through developing new products and services, modifying existing products and penetrating new markets.

RSM McGladrey asked companies if they had independent audit committees, an internal audit function or if they prioritize high-risk areas. Fifty-four percent of companies said they had not implemented any of those strategies and that they were comfortable with their management of risk. “What it means is companies that are risk adverse do not take a lot of risk and so they are not exposed to a lot of risk,” says Murphy. “That becomes crucial when you’re talking about developing a global strategy because it is going to be risky. They can keep their company going in the United States and it’s pretty good, but over the course of time it might not work out so well.”

Many small- and medium-sized manufacturing companies are also not taking advantage of many tax breaks offered to them through the federal tax code. The federal Domestic Manufacturers’ Deduction of 6 percent for companies making products in the United States “is better than a tax cut — it’s a tax provision already in law,” says Murphy. Yet only slightly more than 40 percent of manufacturers use the deduction.

Fifty-eight percent of small- and medium-sized manufacturers are taking advantage of the R&D tax credit, but there are still 42 percent that aren’t. “Some aren’t doing any R&D, which includes both new products and processes; some are losing money so they don’t even waste their time; and others worry

that they will get denied if they claim the credit because what a manufacturer thinks is R&D the IRS might disagree,” says Murphy.

Similarly, small- and medium-sized manufacturing companies are not taking advantage of government programs in place to help them compete in international markets. The Commerce Department’s International Trade Administration “is a great resource” that is not being utilized, says Murphy. “There are breakdowns between the public and private sectors. The SBA has programs, states have programs, the Departments of Labor and Commerce all have programs, but the utilization rates are not as high as one would think they should be.” When asked why they were not engaged with government agencies created to help them, most of the companies said they are not familiar with the programs, are not interested in government involvement, aren’t sure how to get started and don’t have enough people or resources to pursue such opportunities. For those companies that do avail themselves of government programs and tax breaks “it pays off,” says Murphy.

Small- and medium-sized manufacturing companies are also concerned about finding qualified workers. Over the next 18 months, 63 percent said they plan to expand their workforce. “There is an overall need for labor, and the entry level need is about the same as the specialized need for engineers,” says Murphy.

But manufacturing companies don’t have very good relationships with those providing trained workers. Only 24 percent of companies said they have a recruiting relationship with a two-year school, and 48 percent of those who do said that relationship was ineffective, which means only 12 percent have any luck hiring people out of two-year schools. Only 17 percent of small- and medium-sized manufacturing companies had a relationship with a four-year college, and 57 percent said it was ineffective. “Even though a lot of people are working quite hard to figure out what skillsets are needed for industry, we haven’t gotten there yet,” says Murphy.

Companies that were most optimistic about their growth prospects in the future were medical devices (95 percent optimistic), electronics (86 percent), chemicals and allied products (83 percent), food and allied products (78 percent), metal fabrication (77 percent), industrial equipment (75 percent), plastics (72 percent) printing and publishing (67 percent), building materials (63 percent), and transportation (58 percent).

Murphy says that over the long-term, U.S. manufacturers should be able to regain their footing, due in part to the exploding cost of energy. It won’t make economic sense to ship heavy items across oceans. “Manufacturing will be regionalized and the countries with the raw materials will drive a lot of manufacturing investment,” he says. “Energy will be a key driver of what is located where.”



## *The State Of China, From Its Communist Party Leader*

The Communist Party of China was busy patting itself on its back for “holding high the great banner of socialism with Chinese characteristics” over the past five years, said Chinese President Hu Jintao, general secretary of the Central Committee of the Communist Party of China. Over the past five years, China has attained a “new realm in adapting Marxism to conditions in China,” he said in his opening remarks to China’s 17th Congress starting Oct. 15.

China’s Communist Party Central Committee has overseen an incredibly prosperous five years, making policy decisions that have been “perfectly correct,” said Hu. “The great new undertaking to build the Party made solid progress. Endeavors to strengthen the Party’s governance capability and vanguard nature were intensified. Efforts to make theoretical innovations and arm Party members with the achievements proved successful. The campaign to educate Party members to preserve their vanguard nature yielded substantial results. Intra-Party democracy continued to expand. Major headway was made in strengthening the Party’s leading bodies and the ranks of its cadres, and especially in educating and training cadres. Work in relation to talented personnel was strengthened. Efforts were stepped up to reform the cadre personnel system and make innovations in the organizational system. Remarkable results were achieved in improving the Party’s style of work, upholding integrity and combating corruption.”

The benefits of such governance were felt throughout China’s society, Hu told the Congress. The country’s economy grew at an average annual rate of more than 10 percent; prices were stable. “Efforts to build a new socialist countryside yielded solid results and development among regions became more balanced,” said Hu. The country’s innovation system and infrastructure improved dramatically. It put a man in space; reformed its tax system to improve conditions in its agricultural sector; reformed its state-owned enterprises and improved its banking, public finance, investment and pricing systems. It put in place a “sound market system” with improved macroeconomic regulations. Its total volume of imports and exports increased sharply. “Solid steps were taken in implementing the ‘go global’ strategy and the open economy entered a new stage of development,” Hu told the opening session of the communist party meeting.

Living standards improved significantly; residents had better food, clothing, housing, transportation and “enjoyed markedly improved public services.” The country implemented a “socialistic law system with Chinese characteristics that is now firmly in place and stresses the rule of law. Efforts to establish the system of socialistic core values made steady headway and marked achievements were scored in the Project to Study and Develop Marxist Theory,” said Hu. “Fresh progress was made in public fitness programs and competitive sports.”

There were big improvements in the educational system. “Free compulsory education was made available in all rural areas,” said Hu. The country created jobs and improved its social security system. “The battle against SARS came to a great victory. The public health system and basic medical care constantly improve. Social stability was ensured and the people lived and worked in peace and contentment.”

China reduced its troop level by 200,000 over the past five years and accelerated its “revolution in military affairs” by making its armed forces “more revolutionary, modernized and standardized, which notably increased their capacity to accomplish their historical mission at this new state in the new century,” said Hu.

Hong Kong and Macao “maintained their prosperity and stability” and political parties on both sides of the Taiwan Straits “started communication,” said Hu. “Cross-straits visits as well as economic and cultural exchanges reached a new high. The Anti-Secession Law was enacted to resolutely safeguard China’s sovereignty and territorial integrity.”

The country is pursuing a foreign policy “of peace.” It is energetically engaging in global diplomacy and its work with nations “created a favorable international environment for building a moderately prosperous society in all respects.”

There are challenges, said Hu. The country has to improve its use of natural resources and clean up the environment. There are still imbalances between rural and urban areas and among regions “and between the economy and society,” he said. “It has become more difficult to bring about a steady growth in agriculture and continued increase in farmers’ incomes. There are still many problems affecting people’s immediate interests in areas such as employment, social security, income distribution, education, public health, housing, work safety, administration of justice and public order; and some low-income people lead a rather difficult life...The governance capability of the Party falls somewhat short of the need to deal with the new situation and tasks. A small number of Party cadres are not honest and upright, their formalism and bureaucratism are quite conspicuous, and extravagance, waste, corruption and other undesirable behavior are still serious problems with them. We must pay close attention to these problems and continue our efforts to solve them.

“Our achievements over the past five years are attributed to the concerted efforts of the whole Party and the people of all ethnic groups. On behalf of the Central Committee, I wish to express our heartfelt thanks to the people of all ethnic groups, the democratic parties, people’s organizations and patriots from all walks of life, to our compatriots in the special administrative regions of Hong Kong and Macao and in Taiwan as well as overseas Chinese nationals, and to our foreign friends who care about and support China’s modernization drive.”

# Treasury Official Says China Currency Change Won't Impact Imports

A revalued Chinese yuan will not cause a significant reduction in the U.S. trade deficit with China, says Treasury Under Secretary for International Affairs David McCormick. A higher value Chinese currency "will not provide a magic bullet for solving the problems of American industries facing overseas competition," McCormick told a conference in September at Peking University. "What increased currency flexibility will do is remove a major cause of the perceived unfairness in our bilateral relationship allowing us to move on to the important long-term challenges the United States and China jointly face."

The Chinese should not be fearful of a currency that floats, McCormick told his Chinese audience. A currency that appreciates in value will not restrain growth, nor will it lead to deflation. "We have already seen the resilience of China's exporters to currency appreciation, with many enjoying higher profit margins today than they did two years ago," he said. Since China announced that its currency would "float" in July 2005, the yuan has increased in value against the dollar from 8.2 to 7.5 (8.5 percent) as compared to the Euro, which has increased in value from .85 to .69 (17 percent) since late 2005.

McCormick told his Chinese audience that other countries in East Asia, Korea, Indonesia and Australia have all had currency appreciations far larger than China's, while maintaining strong growth and price stability. So did Japan in the 1970s, "an example more relevant to China than Japan in the 1990s," said McCormick, who was formerly president of FreeMarkets and Ariba before joining the Commerce Department, moving to the White House as deputy national security advisor to the President for international economic affairs, and assuming his current position at Treasury in August 2007.

If China were to allow its currency to float freely, the country would experience an increase in consumer consumption and more balanced growth. "This transition will occur through a decrease in the price of imports and the introduction of stronger incentives for

Chinese companies to produce for Chinese consumers," said McCormick. "What currency reform will also do is provide Chinese policymakers with greater freedom to use monetary policy to maintain price stability and avoid asset bubbles. This is of particular significance given China's recent acceleration of inflation. All of this will lead to growth that is more stable, more China-centered, and more effective in raising the living standards of the Chinese people than China's current growth model now is.

"I know there are many in China who have expressed concern that more rapid currency appreciation will hurt low-income workers in some sectors. To the contrary, by encouraging employment growth in less capital-intensive domestic-oriented industries, exchange rate appreciation will open up new opportunities for low- and un-skilled workers. Even more important for the poor is that industries serving domestic consumption demand will create new jobs at a much faster rate. According to a recent study by Robert Feenstra, an economist from the University of California, growth in domestic demand has proven three times more effective in generating employment in China than growth in exports."

## *iNEMI Heads To China*

The International Electronics Manufacturing Initiative (iNEMI) has opened an office in China as its "logical next step in our phased approach to globalizing iNEMI activities," says consortium chairman Nasser Grayeli, vice president of technology for Intel Corp. The consortium's office in Pudong, Shanghai, will help broaden the global nature of the electronic technology roadmap it produces every two years. "Our office in Shanghai will provide a regional center to support further collaboration among our members, and to help recruit participation from companies in the region." says Grayeli. The Shanghai office is the first iNEMI office outside of North America. The group will have a ribbon cutting ceremony on Jan. 16, 2008 followed by a forum entitled, "Innovation for the Electronics Industry" that will feature presentations by experts from industry, research institutes and government discussing miniaturization, energy and the environment, and increasing the reliability of electronics.

**MANUFACTURING & TECHNOLOGY NEWS** (ISSN No. 1078-2397) is a publication of

Publishers & Producers, P.O. Box 36, Annandale, VA 22003. On the Web at: [www.manufacturingnews.com](http://www.manufacturingnews.com).

PHONE: 703-750-2664. FAX: 703-750-0064. E-MAIL: [editor@manufacturingnews.com](mailto:editor@manufacturingnews.com).

Annual Subscription Price: \$495. Frequency: Twenty-two times per year.

Editor & Publisher: Richard A. McCormack ([richard@manufacturingnews.com](mailto:richard@manufacturingnews.com))

Web Technical Coordinator: Krishna Shah ([krishna@manufacturingnews.com](mailto:krishna@manufacturingnews.com))

Business Manager: Anne Anderson ([anne@manufacturingnews.com](mailto:anne@manufacturingnews.com))

Electronic distribution of a PDF version of this publication within an organization is available at a reasonable rate.

**Subscribers have access to the Manufacturing & Technology News Web site, which includes a keyword searchable archive of the past eight years of Manufacturing & Technology News. PDF versions of the publication are available for download. Register in the "Subscribers Only" section at [www.manufacturingnews.com](http://www.manufacturingnews.com) for electronic delivery.**