

# Noel Longuemare On Acquisition Reform

## “I See Great Vitality in Today’s Acquisition Workforce”

“Quality saves money; good quality doesn’t cost anything.” And reinvigorating quality and cost savings into the government’s acquisition reform process is a top priority for Principal Deputy Under Secretary of Defense (Acquisition & Technology), R. Noel Longuemare. Acquisition reform, according to Longuemare, is a necessary change that will allow us to act with vigor and flexibility into the future. He sees clearly the need for such change and expresses it with conviction.

He is a man of expectations, thoroughly convinced that the acquisition workforce will meet the challenges posed by declining budgets, accelerating technology, and unforeseen threats to national security. He expresses absolute confidence in the “enthusiasm and technical ability” of the acquisition workforce.

Longuemare spoke to *Program Manager* at length from his Pentagon office on Aug. 30.

**LeBoeuf:** We interviewed you for the *Program Manager* magazine in March/April of '94. It's now been two-and-a-half years. What significant successes have you seen in acquisition reform, specifically concerning your responsibilities in acquisition and technology?

**Longuemare:** Gib, let me go back since you referred to the initial inter-

view. When I first started making speeches here [DSMC], I used to talk about four specific things that were important from the Department’s viewpoint to focus on in order to achieve our objectives.

The first was what would normally be called the pure acquisition reform initiatives such as the MILSPEC reform and the things that Colleen Preston has been pushing very hard. That’s obviously a very significant area. But in addition to that there were three others.

The second was the importance of Joint programs—getting more across-

the-board use of the same materiel, having Joint development, that type of thing.

The third was attention to life cycle cost and support—the whole area of logistics support.

And the fourth was to push the concept of Cost As an Independent Variable.

Those were sort of the going-in positions early in the game, and so probably it’s worthwhile to use that as a point of reference. We can talk about the acquisition reform initiatives in

FROM LEFT: PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND TECHNOLOGY, R. NOEL LONGUEMARE, IS INTERVIEWED IN HIS PENTAGON OFFICE, AUG. 30, 1996, BY *PROGRAM MANAGER*'S REPRESENTATIVE, GIBSON LEBOEUF, HOLDER OF THE NAVY CHAIR, DSMC EXECUTIVE INSTITUTE.



*Gibson LeBoeuf, Holder of the Navy Chair, DSMC Executive Institute, and member of the Senior Executive Service, conducted the interview with Secretary Longuemare on behalf of the DSMC Press.*

more detail later, but suffice it to say that I think those are going quite well. Let me dwell a little bit on the last three and maybe we can go back to the first one later.

In the area of Joint programs, I think there's a growing recognition of their importance. The Services, the Joint Staff, and the JROC [Joint Requirements Oversight Council] have been working very hard to pursue jointness. And from the acquisition initiative, we've been working very hard to try to arrive at things that will facilitate jointness. Our thrust in open systems, for example, is going to be a major factor in being able to achieve these Joint programs and a number of additional benefits. I already see a great deal of success in some areas. A significant number of our programs are now Joint.

The life cycle support area has gained a lot of momentum. There's a growing recognition of the importance of logistics and support. A growing number of important programs are now addressing that specifically, and I'm starting to hear Life Cycle Cost mentioned as a

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priority on almost all of our new programs as well as the updates, so I think we can achieve some real progress down the road.

And the last one, Cost As an Independent Variable, that's one of my favorite topics, and I'm really delighted to see how well it is catching on. We're seeing a lot of good results from this thrust.

So in a summary fashion, I'm very pleased with the degree of progress that we've had so far in these important reform initiatives.

**LeBoeuf:** That's certainly good news for our readers. Let me just take you back to TI, Texas Instruments, in April of 1996. You noted that acquisition reform was more than saving money or making things more efficiently—that it could also involve a safer environment. Along those lines, what examples would you cite against the notion that hard-nosed efficiency is the enemy of good science?

**Longuemare:** Well, I certainly don't agree with that last premise. But what we have learned as a consequence of pursuing reduced cost is one very important thing: It's analogous to the relationship between quality and cost—

producing quality saves money. Good quality doesn't cost anything, and the same concept is proving true in our related thrusts.

What was interesting to me in this Texas Instruments example was that the initial thrust was to pursue reduction in emissions for the environment, but in the process of doing that it turns out that the steps that were taken reduced the overall cost of the process and [Texas Instruments] ended up with a better total result. I think that's an interesting observation that wasn't immediately obvious. And what it shows is that in most cases when you become more efficient, when you do things better, you usually waste less, you do things only when they're needed, and that generally translates into a better product. This particular example reduced the volatile substance emissions from paint by a large factor and greatly improved the environment. But it also turned out that the process they used substituted lower cost items, there were less emissions, and so it was a win-win deal for everybody.

**LeBoeuf:** Let's turn our attention to some recent news in the *Washington Post*. We've all read that there is the possibility that Mr. Deutch could be a likely replacement for the Secretary of Defense, Dr. Perry, in the future. How might acquisition reform, especially the acquisition and technology part of it, benefit from his past experience in the A&T environment? Would you care to comment on that, please?

**Longuemare:** First let me point out that Dr. Perry has not shared with me, or to my knowledge anyone, any intentions of stepping down. And from a personal viewpoint, I certainly hope he does not.

Let me also point out that when John Deutch was here in the building [Pentagon] he worked for Dr. Perry, and Dr. Perry set the tone in terms of the importance of acquisition reform as a high priority. John clearly grabbed that baton and ran with it very hard, and



Photos by Greg Caruth

## R. NOEL LONGUEMARE

*Principal Deputy Under Secretary of Defense (Acquisition and Technology)*

**R.** Noel Longuemare was confirmed by the Senate as the Principal Deputy Under Secretary of Defense (Acquisition and Technology) on Nov. 17, 1995. As the Principal Deputy, he serves as chief advisor to the Under Secretary of Defense for Acquisition and Technology, and oversees the Defense acquisition programs of the Army, Navy, Air Force, and Defense Agencies. He carries out his duties through the Defense acquisition process, including the Defense Acquisition Board and Defense Acquisition Executive Summary Program.



Prior to his appointment by President Clinton, Longuemare was Vice President and General Manager of the Systems and Technology Divisions at the Westinghouse Electronic Systems Group in Baltimore, Maryland. Since joining Westinghouse in 1952, he worked in design and development engineering, line positions, and project management. He played a leading role in the development of modern radar and avionics systems for airborne and land mobile applications. He has been heavily involved in Low Observable/Counter Low Observable programs, and recently took a leading role in successfully applying Defense technology to non-DoD applications.

Longuemare holds eight patents and 17 patent disclosures, and was active in technical and industrial societies in the aerospace field. He was Chairman of the Aerospace Industries Association (AIA) Technical and Operations Council, the AIA Key Technologies Thrust, and the Advanced Sensors Technology Panel. He was also Chairman of the Computer-aided Logistics Support and Concurrent Engineering (CALs/CE) Steering Group for the National Security Industrial Association (NSIA).

Previously, Longuemare served on numerous panels for the Defense Department, and was a member of both the Defense Science Board and the Air Force Scientific Advisory Board.

He graduated from the University of Texas — El Paso (B.S.E.E.), the Johns Hopkins University (M.S.E.), and the Stanford University Executive Program. Longuemare, a registered engineer in Maryland, resides in Ellicott City, Maryland, with his wife, Julie. They have one daughter, Maria.

was instrumental in really pushing this effort, so certainly he understands the process and would be able to step right in and do a good job of pursuing it.

But I'm hoping that we can just continue with Dr. Perry, who has been the real father of this effort, and has done a wonderful job of leading the Department.

**LeBoeuf:** *Let me turn, if I may, to my own pet peeve—the technical side of the house. Your background is engineering, and includes extensive experience in the private sector. Like many others on Dr. Perry's team, in the inherently political process of reform today, why is it that technocrats—if you'll excuse the expression since I'm an engineer myself—seem to be succeeding so well?*

**Longuemare:** Gib, I'd say it really relates to the nature of the business we're in. Maybe decades ago the Department of Defense might have been worried about some fairly straightforward things, but in today's environment almost all of our weapons systems are incredibly complex in terms of utilization of the latest technology. Our whole approach depends on technological superiority in order to do the job, so I think it's fundamental to the whole process. I can't imagine people without a strong technical background being able to do a good job in the decisions we have to make. It's fundamental to the issues.

Fortunately, many of the people that have been brought in not only have a technical background, but also a good business background. And, of course, a good part of acquisition reform deals with how to change our way of doing business. But I think it's a combination of both the technical aspect of it as well as the business experience that is of real importance.

**LeBoeuf:** *Let's discuss the DoD 5000 Series. It has now been revised. It's issued and on the street. But, of course, in March of '94 it was still a work in progress. Could you give us a report card on its effectiveness to date?*

**Longuemare:** The 5000 Series, of course, started out with a lot of good ideas, but in terms of detail it was a relic of the past because it was pretty much a “telling people how to do things” type of document. It was also very large and complex.

The new 5000 Series has streamlined that down to a very readable and workable document that gets down to the essence of the situation. And as a result, I think people now have a much better understanding of what the real intent is. I see a growing number of examples now of how the streamlined 5000 Series clarifies the acquisition reform initiatives and how it’s being picked up and used by more and more people. It’s being embraced now by a much greater number of people down in the lower levels of the organization who can now understand more of the comprehensive picture than before.

**LeBoeuf:** Well, it certainly has helped enhance in streamlining the acquisition process, in my opinion. Let’s go, if I may, to some of the old “rap” on DoD—that we paid for technology that failed to materialize, whether we were successful with programs or not. It’s now said that the Department gets what it pays for, but that the nation is looking for a peace dividend, and it needs that more so than it needs other weapons systems.

*As an individual with one foot in the acquisition door and the other one in technology, how would you make the case for reinvestment? Given the political will, do you feel that our present lead in technology is sustainable?*

**Longuemare:** Well, number one, Gib, I think we have to make sure that we sustain our technological superiority because if we don’t do that, we’re certainly not going to make it up by quantity. The future is going to depend even more so on maintaining that lead. And the important thing, then, is to invest in the right technologies in the right ways to maintain that lead. So that’s not even an issue. We really have no other choice.



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Given the fact that we have such a set of different priorities than during the Cold War, there are other pressures besides defense that are putting demands on the country. We have to figure out more credible ways to do this job with less money. And the obvious answer is that we have to depend to a much larger degree on the commercial sector, and also to some degree on our international partners to provide the investment that needs to be made in terms of keeping the technological edge. So the so-called dual-use ap-

proach, I believe, is a very key factor that we have to emphasize.

**LeBoeuf:** Concerning IPTs or Integrated Product Teams—one of the top acquisition reform initiatives today that some say is replacing concurrent engineering. Do you see savings and improvements that you can share with us and any lessons learned that have come out of the IPT process?

**Longuemare:** First, Gib, I would take a little issue with the thought that concurrent engineering is being replaced. Actually, in reality we’re embracing concurrent engineering under a different name; it’s really Integrated Product and Process Development or IPPD. And the whole concept of the IPT, which is now emphasizing IPPD, is putting into practice concurrent engineering.

As you know, the concept of concurrent engineering or IPPD, which in reality is the more encompassing approach, is to take all of the relevant players, get them together at the beginning, and use them as a team to come up with the best solutions to the problems. And the idea is to do it early on, in the beginning, in an inclusive way as opposed to after the fact in a serial manner. So I believe that we’re now beginning to do very well in this area.

There are a large number of pay-offs that are associated with the IPT process. For example, approximately 75 percent of our Defense Acquisition Board (DAB) meetings now are not required. I believe something like 33 or so DAB meetings have been scheduled, of which we only held about nine. Some 24 formal DABs were canceled because they weren’t necessary, since the issues had been solved ahead of time. We’ve processed the majority through the so-called paper DAB process.

**LeBoeuf:** And the IPT process you feel has really revolutionized how we tackle the tough issues?

**Longuemare:** The IPT process has allowed these problems to be worked

out ahead of time instead of bringing them to the top-level meetings. So this has two effects. One is the problems are solved early on, but also we're doing problem solving much more rapidly. This reflects the new oversight attitude of trying to find ways to help a program succeed rather than merely finding where the problems are after the fact.

**LeBoeuf:** *Currently, the Navy has the F-18E/F, the Air Force is fostering the F-22, and of course there's the Joint Service Strike Fighter. All these are next-generation fighters that are going to have enhanced stealth capability and even smarter weapons. How might acquisition reform reduce their cost and efficiency and still provide us with these better equipped aircraft?*

**Longuemare:** Gib, I think this is a good illustration of what I talked about in the beginning; that is that acquisition reform is streamlining work and stimulating more efficient ways to do things. Contrary to what some people might think, it actually ends up in having better products. And of the programs you mentioned, every one is an example of how this is being put into practice.

The F-22 program, for example, has achieved substantial cost avoidance despite budgetary changes and schedule stretch-outs. There are other examples, like the F-18E/F program. That's a great program. The Navy announced recently that they have completed their milestones ahead of schedule, they're within cost, and the airplane is below its weight bogey. It's a great program, and all of it is due to application of new management and oversight concepts.

**LeBoeuf:** *Speaking of new concepts, let me turn to ACTDs, or Advanced Concept Technology Demonstrators. That was considered new in 1994. One of the major initiatives of the current administration has been to streamline the time it takes to move a system from development to get to the warfighter. The ACTD program is advertised as one way to accomplish this.*

*However, there are some anecdotal rumblings that the Predator program is having some problems now that it's time to go into production. Can you address this and comment a little bit about that process?*

**Longuemare:** Gib, I'd say, first of all the ACTD process is, from my viewpoint, a roaring success. We have a large number of these programs running now, and virtually every one of them is doing very well. I think the concept has now been well proven, and it's starting to gain a lot of momentum within the Department. There are more and more people climbing on board recognizing the advantage of this concept.

The idea of an ACTD really is to take proven technology or at least emerging technology that's fairly well along, and find out if it has warfighter relevance. It also allows us to get something in the field rapidly to determine if it has value, and provides residual assets that can be left there to be used by the warfighter when the tests are over. In most cases, it turns out these concepts are indeed very useful, in which case we would then proceed to go to production.

The Predator unmanned aerial vehicle is one of the first systems that is going through this transition from ACTD into production. We've used this as a learning process, figuring out how to best make this transition. We're learning some lessons from Predator and are now applying this to other ACTDs. We've learned that we need to have a parallel process going on for any ACTDs that appear to have some promise of moving to the next phase. After you get into one awhile and figure out that it may well have enough advantages to proceed to the next step, then a parallel effort is needed to examine what needs to be done in the program to ready it for production.

Predator has been very successful, but as you might expect, the ACTD is analogous to a production prototype. It

has the best ideas embodied in it that people can think of to go out for that first try. But, of course, as with a prototype, the purpose is to find out how it works and then, inevitably, you find areas where it can be further improved. Now that we've been using Predator in the field, we're in the process of making sure that we understand the total requirements, and are adding some features that are important for a larger buy.

**LeBoeuf:** *I think you've already answered the next question I was going to ask you—have we ever stopped any acquisition systems because an ACTD wouldn't work?*

**Longuemare:** Well, as a matter of fact, there is one. As an aside, let me just digress a minute on that point. The fact that we have only one ACTD that didn't go anywhere shows that we have been pretty selective so far, but it actually might mean that perhaps we're not reaching far enough.

The one example to date where we have indeed started and then stopped, is the boost phase intercept anti-ballistic missile interceptor ACTD. The idea was to have a kinetic energy missile that would go out and attack anti-ballistic missiles as they are in the early phase of flight following lift-off. The problem we uncovered after getting into the program and getting the users involved in looking at the overall requirements and the CONOPS turned out to be one of economics. It was technically feasible to do it, but the numbers of systems required and the numbers of aircraft required were so great that it was economically impractical. Now this is something that wasn't obvious in the beginning. It showed the merit of the ACTD concept because it got the operators involved early on. When they got into looking at it, we got away from the pure technical aspects and found out that from an operational viewpoint, it really didn't hold together. So we stopped the kinetic energy ACTD. We've since, however, started a related ACTD which uses an unmanned aerial vehicle with a kinetic energy weapon to do this job.

So we're now looking at a variant of the original concept to get around the CONOPS problem.

But I think that's a great example of how the ACTD process came to an early conclusion that the particular idea was not feasible. We didn't waste a lot of money, we found out early on, and now we've redirected the program toward a more promising approach.

**LeBoeuf:** *It almost seems to me that that in itself substantiates the concept of ACTD.*

**Longuemare:** It does. And I can tell you from the user's viewpoint, the idea of getting warfighters involved earlier and understanding how these new ideas can be applied allows the users to come up with their own ideas on how to better alter their CONOPS to take better advantage of new innovations.

**LeBoeuf:** *Let's turn to acquisition reform successes. Are we taking better advantage of investments in technology created in the private sector, particularly applying available off-the-shelf hardware and software?*

**Longuemare:** I see a growing amount of that, Gib, in almost every sector, but I think it's particularly true in the area of information technology. One of the best examples I know of is a program we started in the fall of last year; it's called the Joint Broadcast System. We had some people go to Bosnia to look at the command and control situation over there. When they reported back, we concluded that it would be very useful if the chain of command had more immediate availability of both reconnaissance and intelligence data. People at DARPA, DARO, and DISA got together, using an ACTD-like approach, and pulled together a wide-band communications system using commercial-off-the-shelf (COTS) hardware and software. They did the entire job in about 14 weeks—an incredibly short time for such a complex system. For example, a Predator Unmanned Aerial Vehicle flying over Bosnia can



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now send real-time imagery to the command structure using the Joint Broadcast System. The signal travels through a rather complex system that involves microwave-links, satellite-links, fiberoptic-links, back to the

United States, and then back over to Bosnia using additional satellite links. This is all done by and large using commercial equipment, including some commercial satellites.

The significance of COTS hardware and software was brought home to me by a demonstration of this system to Dr. Perry shortly after it went into action. We have the capability here at the Pentagon to see this real-time imagery that is being taken in Bosnia. The key thing to me was seeing this equipment being demonstrated to the Secretary of Defense by, I believe, an Air Force E-4, who had been introduced to the console only a day or so earlier. The reason why this young man learned how to use this system, so quickly and so well that he could brief the Secretary of Defense, is that it was essentially a COTS item. This person already knew how to use computers, and learning this new routine was second nature to him.

So here's something that got put together in an incredibly short time, fulfilled a real need, and was easily assimilated by a user. And the fundamental reasons for most of this success were 1) a bunch of bright people working together; and 2) instead of developing government-unique hardware at great expense and time, they put COTS hardware and software together, and made that into a first-class working system.

The number of examples of using COTS in other areas continues to grow, but I think this is clearly the wave of the future.

**LeBoeuf:** *Let's talk about the role of a program manager. The conceptual role required of a government program manager and the engineers in the IPT process may really pose a cultural shock to the more detail-oriented among us. I can probably attest to that. What advice would you give for those moving from micromanagement to a position of “trust and verify”? How important to this transition is the systems-thinking concept promoted at DSMC, for example?*

**Longuemare:** Let me answer that question this way. We have to be careful to recognize that when we're moving to more streamlined management approaches, it doesn't mean that we are dismissing technical discipline from the process. So, quite the contrary, technical discipline is still required. In fact, if anything, there needs to be more discipline in the process. That means in certain cases you might actually do some micromanaging of the truly important items. But good, disciplined management should not be confused with the old traditional oversight approach. Let me explain.

I think the biggest change is getting rid of strict oversight and replacing it with the concept of team action, with the primary goal of doing everything possible to make the process succeed, to make the program succeed. It is that change and shift in the mindset of the program manager and all the team members that really counts. People are now working together to make a success out of a project as opposed to primarily finding what's wrong with it. That is the biggest change. This is a cultural change that people will have to get used to, but I'm happy to say that I think it is working. Most people who are involved in it now like this approach a great deal more, and it's really happening.

The systems-thinking approach is fundamental, because what it says is that instead of looking at all the little nuts and bolts of the process, it's asking, "What is the overall intent? What are we trying to achieve, and what are the steps that will best help us get there?"

**LeBoeuf:** I'm glad to hear you say that. I really concur 100 percent with you on that. I think unfortunately a lot of the folks today don't really understand the concept that you just described. That we really, in my opinion, cannot lose sight of the technical details, so to speak, as the program managers go about managing their programs on a day-to-day basis.

**Longuemare:** You're right. The idea of relaxing some of the regulations and

getting away from MILSPECs, getting away from all these specifications and standards, doesn't say that you no longer have to worry about making a quality product or having the right kind of checks and balances in the process. If you look at the commercial sector, you'll find that they are very disciplined in what they do. In fact, they may be even more strict about some things than we were, but they do it in an intelligent way. And the idea of moving to performance specifications is so important, so fundamental to this. Instead of specifying all the design details as part of the requirement, we now talk about the total warfighter requirements and then allow the designers and others at that level the flexibility to configure the details so that they can meet the warfighters' true needs. That's the biggest shift, and I think that's where many people are having trouble because they were very comfortable with the idea of having all these details spelled out. It didn't require the level of initiative or thinking that it now does. So you say to industry, "Hey, your job is to go figure out all these details. All I want you to do is deliver the right product that meets these fundamental overall capabilities."

**LeBoeuf:** Let's talk about a part of the educational reform you mentioned in *Program Manager* magazine—that getting the requirements people in the same classroom with the acquisition people would be a major improvement in the planning process.

*Are there any plans to do a class or a symposium or seminar where people could be brought together in a non-attribution setting to work out their differences and gain appreciation other than the IPT process? There seems to be a great demand for education and training about this whole process. Would you comment a little bit about that?*

**Longuemare:** Let me digress in a couple of ways from that. For one thing, the need for more and better training and education is extraordinarily high because of the changes we are making. As I have mentioned in many

of my speeches before, what we need to be thinking about is how to "educate" people as opposed to "training" them. We want to give them the basic fundamental knowledge of what needs to be done, and then allow them to use their own judgment and intellect to apply that to specific examples.

The second point speaks to the importance of co-locating the requirements people together with the acquisition personnel in the classroom. That is a very important change that we need to institutionalize here in the Department to bring our requirements process more in line with budget realities. As of this point, there's still quite a chasm between the people who determine the requirements and people in the acquisition community. That's starting to get bridged now. General Ralston has been very supportive of getting these communities together. I think it just stands to reason that we will do a better job if the people who are doing the requirements are fully cognizant of the constraints and concerns of the acquisition community at the time that they're being generated. You'll end up with a better, more balanced set of goals that will better fit both the warfighter's needs but also the budget that's allocated.

I think the classroom is a great way to have people from both communities interact in this non-attribution setting to better understand what each other's problems are. When they go back to the real world outside the classroom, they will be more aware and more likely to want to work together.

I believe that there are some plans afoot under Colleen Preston's leadership to have some interactive remote learning sessions to further expand on the classroom.

**LeBoeuf:** Continuing on with acquisition reform, Mr. Deutch worked very hard (as you have), and Dr. Perry also, in removing barriers between the Pentagon and, of course, the Congress by trying to be more open in the early stages with what the Pentagon was doing and why and so

forth. How has that paid off in your opinion?

**Longuemare:** Gib, I think that has paid off in spades. As you know, here again Dr. Perry set the tone early on to open the kimono to make sure we had a very open approach in dealing with the Congress. And that was certainly espoused by John Deutch and by his successor, Dr. White. In particular, Paul Kaminski has just made a special point of being very responsive to Congress, answering their questions, trying to anticipate needs, and briefing them ahead of time. As a consequence, I think that's paid off in spades in terms of the successes we've enjoyed in the Acquisition Reform legislation—the FASA and FARA legislation, in particular—which set the stage for the new 5000 Series. This is the first major change that's occurred since the early 1970s, going back to the days of David Packard.

**LeBoeuf:** You have previously stated that the private sector is much faster at fielding a product for itself than the government, due to the government red tape, if I may use that term. Has acquisition reform shown specific signs of shortening the life cycle, and what have been some of the pay-offs?

**Longuemare:** We've seen real improvement in that area. I think the example cited earlier about being able to field the Joint Broadcast System in about 14 weeks is an indicator. I think it would probably have taken us two years to do it under the normal system, and we probably would not have had nearly as good a result. Also, it would probably have cost 10 times as much. That's just one example.

But the whole idea of circumventing much of the old, classic acquisition process has paid off in a large number of programs: the JDAM program is one; the F-18E/F is another example. Replacing the Joint Tactical Information Distribution System (JTIDS) with the smaller, more reliable MIDS equipment is a great example of all of these initiatives coming together. And most



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importantly, the reduction in cost has been quite impressive.

**LeBoeuf:** One final question for you, sir, if you could expand on this. What would you consider the most beneficial acquisition reform initiative that you would be most proud of and the effect that it's had on A&T?

**Longuemare:** Let me not restrict it to one thing, but I'll be happy to name a few. In my view, the one that I'm most proud of is Cost As an Independent Variable (CAIV). I think CAIV is one of the most fundamental methods for making major reductions in the cost of our equipment, but at the same time providing better products. It's one of these rare situations where you get factors of two- and three-to-one reduction in cost, and you get at the same time a better product. You don't have that opportunity very often.

The Single Process Initiative—I haven't mentioned that, but it's certainly a great success story. Dr. Perry formally announced it back in December of this past year. We're eight or nine months into the process now, and we have just an enthusiastic response. Industry has really jumped on board. We have about 50 or so as of today. About 100 different companies have submitted over 300 proposals, and the numbers continue to grow. Over 70 have been approved, with over 85 percent being implemented as block changes. This is a great success story.

Another aspect of our reform efforts that I'm also very proud of is the impact it's had on the workforce. I see great vitality now in the acquisition workforce here. What we've done is to empower people to take a great deal more responsibility and give them an opportunity to use their initiative. And I think this is having a real effect. You just have to look around and you'll see a lot of people with a great deal of enthusiasm for what they're doing. There's a lot of good results here. I think has probably been the most upbeat part of our efforts.

One of the measures of our success will be when we look back on how well we have been able to institutionalize these changes. If you look at the number of individuals in the career workforce who have really bought into this, and are now out championing it, it's pretty large, and that's why I feel this will be one of our proudest accomplishments.

**LeBoeuf:** I couldn't agree with you more, Sir. I think when you look back at many, many folks in different administrations trying to change the way we do acquisition, in my 28 years of being in the system I have to say that you should feel very proud because this team, working with Dr. Perry's team, has really made the change.

**Longuemare:** It was definitely a collective effort. No single person has done it all—it is just a whole team process of which we can all be proud.