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by

Dr. Jacques S. Gansler

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Acquisition Theory and Practice for a Transforming Defense**

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NPS Acquisition Research Program
Attn: James B. Greene, RADM, USN, (Ret)
Acquisition Chair
Graduate School of Business and Public Policy
Naval Postgraduate School
555 Dyer Road, Room 332
Monterey, CA 93943-5103
Tel: (831) 656-2092
Fax: (831) 656-2253
E-mail: jbgreene@nps.edu

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Proceedings of the Annual Acquisition Research Program

The following article is taken as an excerpt from the proceedings of the annual Acquisition Research Program. This annual event showcases the research projects funded through the Acquisition Research Program at the Graduate School of Business and Public Policy at the Naval Postgraduate School. Featuring keynote speakers, plenary panels, multiple panel sessions, a student research poster show and social events, the Annual Acquisition Research Symposium offers a candid environment where high-ranking Department of Defense (DoD) officials, industry officials, accomplished faculty and military students are encouraged to collaborate on finding applicable solutions to the challenges facing acquisition policies and processes within the DoD today. By jointly and publicly questioning the norms of industry and academia, the resulting research benefits from myriad perspectives and collaborations which can identify better solutions and practices in acquisition, contract, financial, logistics and program management.

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Keynote Address

Presenter: Dr. Jacques S. Gansler, former Under Secretary of Defense for Acquisition, Technology and Logistics; presently interim Dean and Roger C. Lipitz Chair in Public Policy and Private Enterprise in the School of Public Affairs, University of Maryland.

Address

First of all, let me congratulate and thank Jim Greene and the Naval Postgraduate School. I think this is really a very important and significant event. Jim refers to it as the 'First Annual Acquisition Symposium' and I would hope that that is actually the case. Getting this group together, I think, is very important.

I should point out that it isn't my first attempt at trying to do things of this sort. Almost a dozen, maybe ten years ago, at the time, the Chairman of the Joint Chiefs asked a couple of us to go back and look at the schools. I got assigned ICAF and what was then the Defense Systems Management College. One of the things that came out very clearly and was actually put into the report that we did for Admiral Crowe was the fact that there really isn't any acquisition research being done, or very little, and that's such a shame.

Then I became head of the advisory board for the Defense Acquisition University and really pressed them to try to put aside some money for external research; put it into the budget. A little bit took place and then it kind of faded away. Again, I tried pushing them when I got to be Under Secretary. They actually did, in fact, introduce the acquisition senior course and wrote a hundred cases; and they tried to do some research but not really the kind that I think needs to be done, and not sponsoring a lot externally. It was almost all done internally.

So it's been sort of a career sponsorship on my part to try to push this whole area. It seems to me that doing research on improving the effectiveness and efficiency with which we do our overall acquisition, both from a theory and a practice perspective is absolutely essential. There is so much evidence of the potential for improvement that you can easily make the case, it seems to me.

The problem is that while we do spend over \$200 billion a year now, I guess the budget has gone up: In my budget, I had \$40 billion for R&D, \$60 billion for procurement, and \$80 billion for logistics, so, \$180 billion. It's now over \$200 billion for that same kind of pot. Think about it in terms of every working day, over a half a billion a year is spent on these three areas and we never seem to have enough money left to even spend a very tiny percentage to try to improve it. We use it all up and we are always short, by the way, in all three categories—in terms of what we need.

I thought about it in terms of putting some notes together for this meeting. It struck me that now you can make the argument that there are so many changes happening in the process, which influence the acquisition process. It is almost a crime for us not to be figuring out ways to enhance that process, to improve the efficiency and effectiveness of it. We should not be willing to settle; the government, the nation, the taxpayer really, shouldn't be willing to settle. So what I thought of doing was trying to highlight what I think are ***the six major changes that are effecting the acquisition process today***, and suggest that these may be at least six areas



where we should be doing a significant amount of research that, frankly, is not being done today.

The first of these is the changing nature of what the government itself does. This is going from the government as a monopoly “doer” of things to the competitive sourcing of this work; **as we have begun to do.** Regardless of whether the public and private sector win these competitions, we’re introducing market forces to improve the performance and lower the cost. This is done through A76, and other processes like that, including outsourcing sometimes, privatization sometimes, public/private partnerships, etc. You will hear about some of these examples later today.

The interesting part of this is that the Defense Department has taken the lead in doing these things without much research on how it's done or how to do it more effectively. How to apply best practices? How to actually put together the results? How to do enough cases so that people would understand it better? Yet, overwhelmingly the data that are available tend to show that we significantly improve performance (in some cases by orders of magnitude) and at the same time, on average, lower the cost by over 30%. Now why wouldn't one want to do things like that? If you can dramatically improve performance and dramatically lower cost, why aren't we doing it?

Research into overcoming barriers, developing best practices, worrying about the government workforce in terms of soft landings; this overall area needs to just simply get more visibility. With data—hopefully facts do have some influence sometimes in this area—it can actually make a big difference. That's number one. It's the changing nature of the government's role. Clearly, right now, you hear this in terms of civilianizing some of the military slots, for example. In terms of work that's not inherently governmental that people in uniform are doing instead of carrying guns, when we have real shortages of people in the military. All of that area, I think, is the first one I would highlight.

The second one I'd highlight **is the impact of e-government** or the transformation to information-based management and control systems; but much more than from a management perspective, almost from a leadership perspective. Sort of end-to-end; from procurement, finance, logistics, and so forth. Here again, huge benefits in terms of higher performance and dramatically lower costs, if you're willing to change the process. It's not the people that are the problem; it's the process that's the problem—throughout the whole acquisition domain, in my opinion.

The classic example is logistics. You will also hear more about that as we go through the day. We spend over \$80 billion a year on logistics. We do not do a world-class job by any measure that you can come up with. We pile up enough metal and put enough people on it so that we can do it. But if you want to compare our performance to any world-class operation, whether it be Caterpillar, FedEx, pick anyone, they deliver 24 hours domestically, 48 hours internationally with 99.99% probability. We, from the first Gulf War, had an average of 36 days. We've reduced that (this is when things were on the shelf) to an average of 22 days, with an uncertainty of one to two years. So, we order three times as much, in order to make sure that we get it. Thus, we have a \$60 billion inventory floating around, of which about half of it is obsolete. We simply do not do a world-class job—in terms of responsiveness, dependability, or cost. This really matters to war fighters. This is really where the business side meets the war-fighting side. Modern logistics systems, information technology systems, are obviously the way to go here. You can have the desired effect when you link in finance and procurement. So it's



an end-to-end system. Very clearly, this is an area in which the DoD is lagging what has been demonstrated commercially on a worldwide basis. And the biggest challenge here is overcoming institutional hurdles. Research into how it's been done, and into what results have been achieved, can make a huge difference in overcoming the institutional inertia to the needed changes.

Now, if you put together those two, the changing nature of what the government does and the impact of e-government, what you see is a clouding of the separation of lines between the private and public sectors. In the past it's been relatively differentiated. Now you're seeing a fuzzing of those lines. And that's good. Take advantage of what is best in each one and figure out a way to use market forces or competition to maximize performance, while minimizing cost. Everybody knows we need that extra money. If we could even achieve 10% savings on logistics (at \$80 billion a year) here's \$8 billion annually that could be put into modernization, which we so badly need.

The third area comes from the revolution in military affair. The changing nature of warfare and the changing nature of the technology used for it. Bill Perry called it "reconnaissance/strike" warfare. You can call it "a transformation in military operations". Whatever you want to name it, the reality is we have multiple, distributed sensors and distributed shooters, all "joint" (multi-service) and all interconnected by communication, command and control systems, fused data, etc.

Now, what does this mean for the acquisition community? The first thing that it means is that we must learn how to manage "systems-of-systems". We have always set up our procurements, our program offices, and so forth, around systems platforms; basically ships, planes, tanks, even radios. Now what we have is the challenge of managing a system-of-systems, an integrated program. We aren't organized to do that. We don't have management practices to do that. And we have got to learn how to do that if we're going to learn how to manage these very complex systems-of-systems, which is what the revolution in military affairs is all about—all on a joint basis and (as I'll explain in a minute), on a multinational basis.

In addition, because the system-of-systems, and the revolution military affairs, and the technology are all so heavily dependent on information technology, we now introduce the whole question of cyber security; as well as privacy in many of these areas (in terms of protection of cost data, and things like that). Security of the information systems, and the vulnerability of those information systems, now becomes an area for very important research that has to get done. In a certain sense, you also introduce the added unreliability associated with complexity, when you get into systems of this sort.

There is a lot of very critical analysis simply associated with the technology of these systems. The systems have to be, for example, open architecture. This idea of "plug-and-play" has to be realized; as contrasted to just being in the speeches. And it has to be nonproprietary. How do we structure this from a procurement perspective? It all needs to be linked with "middleware", rather than each program's individual, unique systems. Additionally, we have to be able to handle the rapid changes taking place in this technology. Therefore, we need to be able to, literally, "plug-and-play" with frequent updates of new systems. These are big management challenges to the acquisition community, it seems to me, brought on by the way we're going to be structuring our systems, in order to be fighting our wars of the future.



The fourth area I would raise **is the changing nature of the acquisition process itself.** We are moving to, and should have moved to a lot earlier, the use of spiral development—writing requirements that are capability-based, writing test and evaluation plans that are capability based. These all result in dramatic changes in each of the processes associated with the acquisition process.

Just think of the budget process. Historically we've had a budget process that's R&D, then procurement, and then logistics. Now, with spiral development, we have a block one, a block two, a block three, and a block four, all with R&D. R&D never stops in a spiral development process. Test and evaluation never stops in a spiral development process. The requirements have to be written such that the system is capability-based and continues to evolve as the technology evolves—as a new capability is proven out. This changes the whole acquisition process, and we haven't really implemented that. Additionally, these all have to be requirements that are cost-based, because otherwise we're not going to be able to afford enough of each system. We're going to have to get off that historic curve where we constantly get improved performance at higher cost. We now have to figure out how the next-generation systems will have improved performance at lower-costs. So cost is a military requirement, not an accounting problem.

Because the technology is changing so fast, we also have to be schedule driven. And we haven't traditionally done that. In this Navy audience maybe I can pick on the F-22. Some cynics say it's named that because it's taken 22 years to develop it. Now think about the technology in that. When I was there a few years ago, we spent \$350 million upgrading the electronics systems, because they were obsolete, and it hadn't even been put into production yet. There's something wrong about that cycle time when the critical information technology is evolving every 18 months and our system developments are taking 18 years. They're just incompatible. So, we have got to be schedule driven. The ACTDs and similar things are part of the acquisition change that can help us in this area. Also, using commercial systems, commercial practices, and commercial suppliers can have a big impact here. But all of these changes impact the way in which we have traditionally done our acquisition business. So, these are areas for very significant acquisition research.

The last area I would point out (in the changing nature of the acquisition process) is how do we keep continuous competition—or at least the potential for it? If you genuinely believe, as I do and as all the empirical data certainly shows that the way to keep motivating innovation and lower-cost is through continuous competition, then it must be part of the process. By continuous I mean, for example, you can make the Joint Strike Fighter keep the two engines annually competing, (for a share of the buys) as we did in the “great engine war” for the F-16's & F-15's - - so there is an incentive for better and better performance/reliability at lower and lower costs. Even in the case of the Joint Strike Fighter avionics, having a second avionics **potential** supplier so that every five years, as avionics technology continues to evolve, you can get two or three, or even four for five, generations of new avionics procured in a competitive environment.

So if the current supplier doesn't continue to improve their performance and/or lower their costs then you have an alternative. The fact is, if you have an alternative they will continue to improve performance and lower-costs—as contrasted to our history, which is, once they've won and become a sole-source supplier, costs continue to grow and performance isn't motivated to get significantly better. It's the presence of a credible alternative, in a competitive environment, that can make such a dramatic difference.



Now, as you know, we've had trouble trying to convince Congress and many in the military about why it's worth keeping a second source around. I think the empirical data are very clear, but people say 'you mean you can't manage it (in a sole source environment) so that you drive up performance and lower-costs? Why do you have to pay a second source in order to do that? The answer is, we've tried for the last 40 years, and it hasn't worked. Why not try the one that does work; which is as in the commercial world, using continuous forms of competition, or at least the credible threat of competition.

By the way, I don't think it should be a law to always run the competition because if somebody continues to improve their performance and lower their costs they shouldn't be forced to compete it. That's the reward for doing what you should have done in the first place. **So that's the fourth area: The changes in the acquisition process.**

The fifth one, and one of the more challenging ones from an acquisition perspective, ***is that I can't imagine that we are ever going to go into any military operation in the future without some form of a coalition of our allies.*** Of course, the impact of this is far broader than just a particular military operation; it's the whole area globalization and its impact on the acquisition process. Here, you do get into concerns about technology transfer; and you get into issues associated with how you achieve interoperability. When we go to war and our allies can't securely talk to us (which was the case in Kosovo—with two allied airplanes flying along next to each other, but who couldn't talk in a secure mode) then we are vulnerable, and that's obviously not good. It's clearly a case of the acquisition process having failed to achieve its objectives.

And so if we're going to go to war as a coalition, and I believe we are, then we have to have ways of achieving allied systems' full interoperability. That gets into issues of sharing technologies with our allies, and having assurances that they are controlling it. It actually gets into a lot of the internationalization of the defense industry, and the increasing globalization of the commercial technology that is leading-edge, and that our adversaries have access to. Surely, our allies should be able to get it directly from us. Concerns of this sort are very serious acquisition research issues that I think that we have to address. My impression is that there's very little serious research being done in the area of issues such as technology transfer.

The sixth and the last area that I will highlight is the changing nature of the defense industry. Because of the fact that the DoD is a monopsony buyer it is our responsibility to ensure that we have an efficient, responsive, innovative defense industry out there when we need it. In this regard, I would not define the defense industry as just defense firms. I would define it as the people who supply goods and services—directly or indirectly—to the Department of Defense. The more of those we can have commercially, probably the better.

I would certainly think that, given flexible manufacturing and other technologies that are available, we could have many integrated (civil and military) production lines. The Japanese are heading in the direction of efficient production in quantities of one; for automotive. What you have is multiple different cars coming down the line, and the robots and computers are smart enough, and have been programmed, so that it's just insertion of different parts into the process. You can have some military stuff and some commercial stuff, as long as the production process is the same. The end-item equipment doesn't have to be the same.

Why can't we have integrated lines? The reason we can't is because of all of our historic practices, and all of our unique rules. Not because the technology doesn't allow it. The commercial firms don't want to use our cost accounting standards, for example. That's fine; we



have permission to waive it. Then why don't we take advantage of it? Because we've never done it before. And that's why we don't do it.

As to the industry structure itself, it is essential that we make sure we have at least two qualified firms in each critical sector. Because we had seven or eight aircraft companies and knew we couldn't afford all of them, we encouraged integration and consolidation of these firms—always with the statement that what we were doing was allowing consolidation as long as we maintained competition, and as long as the government gained the benefit of cost savings. Those were the two considerations that we had.

We've had to stop some. You recall the proposed Northrop/Lockheed merger we stopped because that would not have maintained two people in some of the critical sub-sectors. I would emphasize that two in every critical sector is not necessarily just the platforms (ships, planes, and tanks). It's the critical subsystems, where technological innovation is so essential as we move along.

It's the government's job, as the monopsony buyer from an oligopoly set of suppliers, to worry about the structure of the industry, because the structure of that industry will determine the conduct and performance of that industry. If we don't worry about it, two or three wins in a row by one supplier and the other one's gone. That may mean we have to stimulate, even subsidize, some R&D in order to keep a second supplier in a critical area doing the next-generation systems. Then, when the competition comes along, there's still somebody there.

That leads me into thinking about what's happening today. In some of these consolidations, vertical integration is taking place. A major acquisition issue for the future is how do you assure that the prime contractor, who is basically becoming a systems integration house (not first and foremost a platform supplier), is holding an objective, independent assessment of his own supplier (at both the platform level and the lower tier) versus someone else's? How do you guarantee that objectivity, from the government's perspective, and yet not have the government assume full responsibility for that decision; because you want your integration contractor to have that accountability? That's a really big challenge from an acquisition research perspective. I think there are ways to do it, but I don't see much research being done; and yet I see the industry continuing its consolidation through vertical integration. We're going to suffer from it unless we start to really figure out how to address that from a public-policy perspective. This should be an area of considerable research.

The problem is that we've taken the position that 'the market will take care of it', yet the natural forces of the market tend to yield a monopoly, if allowed to continue uncontrolled. That is why we have antitrust laws and things like that. Now we're down to the situation where if you're the only buyer of weapons systems and you have one or two suppliers, three at best, in any critical area, the Government has a responsibility to make sure that this industry becomes competitive - - and also that it makes money doing so, in order for it to reinvest in innovation.

Those are the six sets of changes: 1) The changing nature of what the government does; 2) the impact of e-government; 3) the changing nature of warfare and its associated technology; 4) new acquisition practices; 5) globalization's impact (including inter-national coalition operations); and, finally, 6) the changing nature of the defense industry. And we must address these all together, because they're all happening at once. These are not independent. They are all interrelated.



It's a very complex analytic issue, and one in which serious research needs to be done—on best practices, on results achieved, on new ideas, and so forth. And that's where I think we don't now have that research being done. It needs to be done—given its importance, and the potential associated with these changes to our military capability. I think it's a surprise that there is so little research being done, and so little education being done. Particularly, I would argue, in universities around the country where you must develop the people who will do this in the future. You want to graduate students capable of addressing these issues. You want people who will come into the government with some training and background on these issues, and/or people who are in the government being trained instead of doing it the way we have always done it—because 'that's the way they've always done it for 20 years, so let's keep doing it that way'. The old way is not applicable in this environment of these dramatic changes. Right now, if you look at the level of funding in this area—of the \$200 billion a year we spend here—it's really a sin. I'd argue that a lack of funding and a lack of leadership priority is why we're not giving it proper attention.

We can set the requirement easily. It's a state-of-the-art, flexible, low cost, responsive Defense acquisition system. One that uses new models and new practices, and worries about both the theory and implementation. I think that can be done, on a relative scale, with very little money. The result will be not only enhanced acquisition results, but attracting new people and retaining top people in the acquisition community—practitioners and researchers.

To summarize, I think this conference is a very important first step in the right direction. Obviously, much more is required in this area to be able to capitalize on what the military clearly need in the coming decades. I think this is very important; very much worth the effort that people are putting in here today. But even more important is what we can do in terms of the future; and I hope all of you will join me in trying to achieve our objective over the coming years.

Thank you very much.



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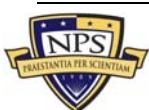
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