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**Whither the Elephant? Public-Private Sector
Dynamics in the Information Realm
Randall M. Fort**

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Whither the Elephant? Public-Private Sector Dynamics in the Information Realm

Randall M. Fort

Since November 1996, Randall M. Fort has been vice president of the investment bank Goldman Sachs, where he provides management, information, and communications support to enhance the executive decision-making process within the firm and facilitate engagement with external audiences. As director of special projects in space and defense for TRW, Inc., from 1993 to 1996, Mr. Fort participated in strategic planning, marketing, and business development efforts in support of national security, civil government, and international programs. His private sector experience was preceded by 11 years of service in the U.S. government. From 1989 to 1993, he was the deputy assistant secretary for functional analysis and research in the Bureau of Intelligence and Research, Department of State, and from 1987 to 1989, he was special assistant to the secretary for national security and director of the Office of Intelligence Support, Department of the Treasury. From 1982 to 1987, he served first as assistant director and subsequently as deputy executive director of the President's Foreign Intelligence Advisory Board. As a Henry Luce Scholar in 1980/1981, Mr. Fort was a research assistant to a member of the Japanese Diet. Previously, from 1976 to 1980, he worked for Representative Bill Gradison (R-OH) in several capacities, including campaign staff in 1976 and 1978, legislative assistant, and district representative in the Cincinnati district office. Mr. Fort graduated from George Washington University in 1978 with a B.A. degree with distinction as well as Phi Beta Kappa honors. He also studied Japanese at the University of Cincinnati and Ohio State University.

Oettinger: It is a great pleasure to introduce Randy Fort to you, not that he needs any introduction because you've all read his biography, but I am pleased to think of him as a long-time friend. As the last speaker in the series, he will, as he and I discussed, perhaps draw together the two threads we've been following all semester, dealing with the public/military aspects of security and the economic/private aspects. He's lived in both worlds, and he's apparently uniquely qualified to give us his impressions of both. So saying, here is Randy.

Fort: Thank you. First of all, I'd like to say thanks to Tony for the invitation. This is actually the second time I have been so honored to come up and speak to this seminar.¹ The first time was in March 1993, and my personal circumstances were considerably different at that time. On January 19, 1993, the

U.S. Department of State effected the one efficient administrative act in my entire experience there: that is, they got me off the payroll at the stroke of midnight at the close of the Bush Administration, of which I was a political appointee.

At the time that Tony sought me out, I was in the "betwixt and between" period, trying to figure out what I was going to do when I grew up. I wasn't really sure, but Tony sent the invitation and I accepted. I told him, at the time, in kind of a quip, that that was fine and my honorarium for speaking would be \$10,000. He said, "You know, we're just poor little Harvard up here. We don't have resources," or something to that effect. So he gave it to me in Monopoly money.

But as I come to the table a little more than six years later, I'm now employed by Goldman Sachs. For those of you who have been reading the *Wall Street Journal* or the financial pages of various papers, we just had our initial public offering (IPO) Monday. It was the second largest in financial history.

¹ See Randall M. Fort, "The Role of Intelligence in Economic and Other Crises," in seminar proceedings, 1993.

Our IPO price was \$53. We closed the first day at \$70. So that was a nice little bump. You may also have read that the various employees of Goldman Sachs, out of the generosity of the partnership, have all been made shareholders, and we all received IPO bonuses. I felt my personal circumstances are different and I should be in a position to make a donation in return for Tony's showing his faith in me. So I would like to return the \$10,000 he so graciously extended to me six years ago, and he can put that in the campus coffee fund. I thought I would return the honor.

When I was asking Tony about this event today and what he was interested in, he sent me the syllabus of the course, and a list of who some of the other speakers were, and also had a paragraph in his letter about what to talk about: this idea of maybe trying to bridge some of the different worlds ... and anything I wanted to discuss. So I'll throw out a few ideas, and I welcome any questions or comments. If there's something relevant to what I'm saying you're more than welcome to ask. I don't mind being interrupted. I'll probably talk for a half hour or so. I think I may have that many minutes' worth of comments, and then I'll be perfectly happy to have whatever discussion you would like. Let me also add that the views I express here today are strictly my own, and do not represent any official position or policy of my firm, Goldman Sachs.

If you read my biography, as I told the folks at lunch, it's a perfect example of somebody who's never quite been able to keep a job for any period of time. It's been kind of a mixed bag: politics, U.S. government service, and private sector. I started out, as a kid really, doing political campaigns out in Ohio, where I grew up, and worked for a congressman from Cincinnati for several years. From there I received a fellowship to go to Japan, where I was actually able to work as a member of the office of a Japanese member of parliament. I was one of the first foreigners ever to have that honor. I came back and managed, through good connections and good fortune, to end up in the White House in 1982 on a group called the President's Foreign Intelligence Advisory Board under President Reagan. That started about 11 years of different jobs in the intelli-

gence community that extended to the Treasury Department, running the Office of Intelligence Support there, and then at the State Department in the Bureau of Intelligence and Research, where I was responsible for about 125 analysts covering a lot of different areas including economic, political, military, strategic arms control, proliferation, terrorism, narcotics, and those sorts of things that I only vaguely remember now.

After that hostile takeover at the U.S. government in 1993, when I was released, I was a free agent for a while, but I ended up at TRW, which is a conglomerate that, among other things, is a defense contractor in the aerospace business. So I did that job for a while, mostly in corporate staff work. Then Goldman Sachs made the proverbial offer I couldn't refuse in the fall of 1996. I've been with that firm, an international investment bank, for about two and a half years. We trade and manage assets, and also perform classic investment banking activities.

If there's a common thread to that career background, you're welcome to try to figure it out, because I lie awake sometimes thinking, "What am I doing with myself?" One of the common threads is that they met my three criteria for jobs: interesting, challenging, and fun. I'm very happy to say that, in my career, I've always been able to meet those three criteria.

But another common thread would be that the information business has suffused those various positions: the collection, analysis, and dissemination of information to serve the decision-making process, whatever that was, in government, politics, or in the private sector. It's been information of all sorts. It's been open and unclassified; unclassified but sensitive; proprietary and sensitive but unclassified; highly classified but not sensitive; classified and actually useful (there is such a thing); and just about every other permutation and combination that you can imagine.

I've also had the advantage of bouncing back and forth from the government to the private sector and developing some perspectives on each, and I have tried to think through some of the relative strengths and weaknesses of both sides. But as I thought about this and asked Tony, "Well, bottom line, what do you want?" he said, "We've been like the blind men feeling the elephant

here. From your perspective, what does the elephant look like?" So as I was thinking through how I should try to frame my thoughts for this, it seemed to me that the title was, "Whither the Elephant?" What do I think this elephant looks like—this decision-making *apparatus*, this government/private sector linkage, intelligence (small "i" or big "I"), command and control, and these various activities?

As I thought about this, one of the things that struck me was that we have been in the midst of what I think historians, maybe 100 years from now, with people sitting around this table, will look back on as an absolutely profound historic change. The end of the Cold War has become a kind of cliché, a touchstone, for a lot of analysis. Things have changed. But I think one of the most profound changes was that the end of the Cold War signaled the end of government hegemony in a number of significant areas. Over the 50 years or so of the Cold War, we had lost sight of how much power and influence had accrued to the government. What we have been seeing over the last 10 years or so, for a variety of reasons, but I think just as a kind of marking place on the calendar, shows that the end of the Cold War has been very important. There were forces under way, certainly in terms of technology development, that would have occurred whether or not the Cold War were still ongoing. But the fact that those changes were taking place and the Cold War ended meant that the claim of government on any additional increments of resources had also ended. Government no longer had the excuse for aggrandizing power, the excuse for intrusiveness into the personal affairs and civil rights and so forth of American citizens, and just a host of other areas. All of those justifications were lost with the end of the Cold War.

When you think about it, that's had an impact on a lot of different areas. The government, for example, no longer has a monopoly on information. It no longer has first call and best access to technology. It no longer has the smartest people seeking to go into government service. It no longer has the financial resources that it once had. If you just look at the drop in defense spending over the last 10 years, the so called peace divi-

dend, that number amounts to hundreds of billions of dollars by this point.

Government lost out, especially on monopoly of information, with the onset of the Internet and with private imagery satellites now being launched, or I guess I should say attempted to be launched. On the one that just went up the upper stage didn't kick in or something. I don't know where that stands, but I think that new Lockheed spin-off was lost. But that's just a temporary setback. The technology is there and they will clearly be moving forward with that.

Oettinger: I thought they were military.

Fort: No. This was going to be the new private sector satellite. There was another disaster with a Milstar that happened and it also didn't get up, but that was a different bird.

We now even see attempts to market private cryptography. There's a big debate during the last several years between software code writers who are trying to build private cryptographic systems coming up against the government that doesn't want those systems to be marketed too widely and certainly not exported because of the damage that will do to the access of the American intelligence capabilities.

All of these things have been going on, and as a result the power and influence of government, particularly in the national security realm, have been diminished. I think government in general, at least in this country, has been suffering since maybe the Vietnam conflict. Vietnam and Watergate combined caused a lot of people to start having doubts and be more skeptical about government. But at the end of the Cold War, although it was a victory for the government in the sense that it was the culmination of a successful policy maintained over many, many years and many different administrations, when the victory was complete, I think something had changed significantly.

The bottom line is that the government ceased to be a leader in most of these fundamental fields, where it had previously exercised that kind of influence. I'm told that back in the 1950s and the 1960s, when the government in general, but particularly the national security realm (the armed forces and

the intelligence community), was not constrained by resources—any idea could get funded. So someone had some wacky idea about trying to hang a camera on a satellite and then shooting it up and actually taking pictures of the earth and then snipping off the film at a certain point and spitting the bucket of film out and sending it back through the atmosphere and having a plane go up and grab that thing on a parachute, and reel it in.² Crazy, right? Well, we did that for 20-some-odd years. That was the way pictures were taken and recovered until we developed the real-time imagery and the digital system to get it back that way.³

The best ideas and the best technology and the wildest thinking and the most creative and clever people were working in the government. They were working in the National Reconnaissance Office and they were in the various black programs that were all around, many of which Tony has great knowledge about. The private sector was the caboose on the end of a very long train, and the locomotive was clearly under the control of the government. But I think now those roles have basically been almost completely reversed because of the cutbacks in military spending, and that also means intelligence spending. They are heavily resource constrained now in what they can do.

There are many, many more ideas and blue-sky thoughts about ideas and plans. For example, when I was still in government I remember sitting in a session where guys were talking about creating passive, long-dwell imagery systems that would involve putting a huge array in space. You would have individual satellites strung together over kilometers of a distance in some form or fashion to stare and collect passive imagery over a long period of time at a given point—day, night, all across the spectrum. I suppose if we really wanted to do something like that we could. But where would we get the money, the scores of billions of dollars to put something like that in space today? And why? It's not as if we would need something like that to find the odd Serbian tank blowing up a

Kosovar's hut or something. I don't know that it would be a good cost trade-off today.

The point is that while the technology may be there and there may even be the wit, we no longer have the means on the government side. On the other hand, you find the best and the brightest in the private sector. That is where the very smartest minds are heading—to Silicon Valley or to Seattle, Washington, or even to the Route 128 corridor up here, or Fairfax, Virginia, or whatever. Why? Because you have your degree and you do a couple of years apprenticeship, and then you go out with your own start-up in the back of your garage or your camper or whatever, and a couple of years later you go public and you're worth \$100 million overnight. Everybody has at least one of those stories in the back of their mind.

Oettinger: The people here are ineligible. To hit it really big, you have to drop out.⁴

Fort: I see. There may be a few actual graduates out there, though, who have done all right. I guess the dropouts do have the market cornered for now, but that could change.

Obviously, this is not entirely black and white. The government, especially the defense establishment, still takes in hundreds of billions of dollars a year. I do not mean to say that only average people are going into government service. Clearly there are still people of great intelligence and patriotism and so forth who choose a government career, particularly in the armed services, and I don't in any way, shape, or form intend to demean that. What I mean is that over the long haul and looking at the aggregate, the best and brightest are going to investment banks, to Wall Street, to law firms, to high-tech start-ups, and so forth. They're not flocking to Washington these days.

Right now, basically, capital markets being as they are, if you've got a good idea you can find the funding for it, into the billions of dollars, as we see every day. Pick up a newspaper, and there's somebody out there who's willing to underwrite the wildest and wackiest new technology idea, either with

² A reference to the Corona program.

³ KH-11 program.

⁴ A reference to the truncated Harvard careers of Bill Gates and of Edwin H. Land.

venture capital or as an IPO or whatever. Somebody will be willing to support it, because there's enough evidence that at least some of them seem to be paying off.

So we have this kind of role reversal that's going on, this dichotomy. What does that mean for the future of private sector and government dynamics? Another fair question would be: Is this a permanent condition, or is this just an artifact of an eight-year bull market where the private sector, in particular the financial community, is simply more flush with cash right now? Is this high-tech bubble that's going on very strong? Maybe all these conditions will change with some sort of economic downturn at some point.

I don't think it's a temporary change. I think we have made a very fundamental change in that private-sector/public-sector balance. But I don't think that the government has woken up to the fact. I see that when I go back to Washington, which I do fairly often—I'm back there at least once and usually more than that per month. I still do some informal consulting with old friends and colleagues and contacts in the intelligence business and keep my ear to the ground on the Hill, and in some of the agencies, and then watch the political dynamic that's going on there. I don't have the sense that people in D.C. really understand that the parade has passed them by. But I think that it has.

The challenges for the government are first of all to become aware that this has happened, and then to accommodate itself. I think the best outcome for the government would be to become a fast follower of these various activities—technology, information, information flow, and so forth—and not to be left so increasingly far behind as to become utterly obsolete and irrelevant. On the other hand, it then becomes necessary to think about how to get nongovernmental entities—the private sector, academia, or non-profits—to focus on issues, capabilities, and technology that the U.S. government is interested in and actually has a stake in, and how to get those U.S. government equities included into the balance, into the mix, when those other groups are making their decisions and resource allocations, listing priorities, et cetera.

If you doubt the conclusion that I've reached about the government falling behind,

I say, "Let's just take a look at reaction times in government." Right now the Congress is trying, I think for the second or third time in the last couple of years, to pass what's called HR-10, which is a reform of the Glass-Steagall Act, a banking act from the 1930s, going back to the Great Depression, which addressed some of the problems that occurred then. The Glass-Steagall Act basically said investment banks have to be over *here*, and commercial banks have to be over *there*, and there has to be a big gap in between. HR-10 is intended to reform that and to come up with new rules and regulations for banking.

They're still fussing with this. They actually got it passed out of the House last year, and it kind of died in the Senate for reasons that were not really germane to the substance of the legislation but rather had to do with one or two senators' views on the Community Reinvestment Act (CRA). But the bottom line is that it didn't pass. However, even without that in effect, the market has already performed all of the transitions. No one in the financial business is really constrained anymore by anything that HR-10 would do away with. Perhaps insurance companies will be given a little more freedom to do some things, but commercial banks and investment banks are basically doing everything that they want to do.

Oettinger: I agree in part and disagree in part. The phenomenon that you're describing I agree with, but I would interpret it a little bit differently because you seem to lay it on the doorstep of inertia in the government. My own reading is that it's a rear-guard action being fought by those who might stand to lose something—some of the folks in the banking industry and some of the folks in the securities industry who are unwilling to come to a compromise that can go through. Some day, even though with a wail, they'll come to an agreement. But this is not governmental inertia. It's reluctance of the entrenched party to have any change.

Fort: In this case most of the entrenched parties I think you are referring to had pretty much made the deal. It really came down to disagreement on the CRA. Basically, CRA is an artifact of a sort of a do-good, liberal atti-

tude, putting a gun to banks' heads and making them lend to areas and individuals that they would not otherwise lend to for feel-good kinds of reasons. A couple of senators wanted that provision removed and have it treated separately. It also comes down to some of the evaluation process that banks have to go through. Once they're evaluated a number of times as having met certain restrictions, they would be limited. Some of those on the left said, "No; basically these onerous restrictions have to be kept on forever." That really was the issue that hung it up in the Senate. It had passed the House, and the financial community eventually kind of got it. There was a problem with credit unions, but that was dealt with separately and there really were no more major sticking points. Now, that comes down to politics and philosophical differences on the part of some of the senators involved. But my point is that, for whatever reason, the market had already accommodated it.

When you look at some of the other so-called vital issues that are pending out there—Social Security reform, Medicaid, Medicare, and so forth—I think the market will probably end up resolving those situations over the next few years, well before the government ever gets around to doing it, by virtue of making other options available for savings and the like. There is the danger that people will become less and less dependent on Social Security. I personally wrote off Social Security a long time ago as being relevant to my retirement. I had no confidence whatsoever that it would be there or, if it were, I believed that the amounts would either be so restricted or so small as to be sort of irrelevant. Very few people of my general age and experience disagree with those views. So I think that in any host of areas the government is not proving to be terribly responsive, and the market/private sector is providing other opportunities.

Then, just to really beat up on the government, I started asking the question, "Can we even trust the U.S. government to be the repository of sensitive information anymore?" Maybe the answer is not "Yes." Let's just look at the headlines in the last couple of months. When I was in government, and even up until recently, if you had asked me what was the single most sensitive body of

information under the control or within the repository of the U.S. government, I would probably have said the database controlling the nuclear weapons establishment in this country, all the computer codes and so forth that control how our nuclear weapons operate. We now know from the *New York Times* that one little guy just put all that into a perfectly accessible computer database and then smuggled it out, and it's almost certainly in the hands of the People's Republic of China, if not other countries. This was a situation that went on for years, and contrary to the excuses that the current administration has tried to make, it went on right up until just a few months ago on their watch, a process that had started in the 1980s under previous administrations. There were people asleep at the switch all the way through.

If they weren't competent to keep a careful handle on the nuclear weapons, then what are we going to be confident they're really keeping an eye on? We know from hearings in the House of Representatives in the last couple of years that IRS guys love to sit around and say, "Hey, let's look at some movie actor's tax return and see how much money he made! Whoa, here's a supermodel; what did she make last year?"

So our tax return information wasn't too sacrosanct, and nuclear weapons weren't sacrosanct. Let's see, how about the secrets at CIA? No! We had a guy there who was spying for about 10 years and gave away every agent we had in the Soviet Union, which was a fairly important area of activity. He went out and bought that new half-million dollar house and was driving a Jaguar, and we really didn't figure that one out either for a while. So you kind of look at these things and you wonder.

Okay, so there are these problems and mistakes. So what happened? What was the penalty? What was the punishment for that? Ames has gone to jail for life ... after he was caught. Anything else? A couple of guys have been retired out of the CIA and got some letters of reprimand put in their permanent record, whatever that means. As for the Energy Department, we know that it was Ronald Reagan's fault, and the only guy who's been punished so far is the guy who was the head of the intelligence unit that actu-

ally discovered the problem. Of course he was promptly demoted. So one wonders.

So now you look at the private sector, and the penalties of making mistakes. If you're Nick Leeson and you make a bunch of wrong bets in the currency market, you tank Barings Bank, an investment bank that's been around for 300 years. If you're Joe Jett and you basically make up a bunch of trades in the fixed income market, your company, Kidder Peabody, ceases to exist. If you're Michael Milken you can kick Drexel Burnham Lambert right down the tubes, and so forth and so on. So the private sector actually places a cost on failure, as well as a value for success. So when I think about the differences and the directions that these two forces are going in, those were some thoughts that occurred to me.

I see you've been spending a lot of time focused on infrastructure security, and this whole critical infrastructure process. That was just getting underway when I was in my previous job working for TRW. We were a defense contractor, and we actually were trying to get involved in that process. In fact, I was trying to talk my then boss into becoming one of the government representatives on the panel working on that. He was kind of saying, "I don't want to do it." He kept dragging his feet, and even though we were trying to line up the politics to get that done, it ended up that because he didn't want to do it, he didn't do it.

So I followed that process at the outset, and then I went away and kind of ignored it until the report came out. I read some of the things in the press about that and then went back as a result and was invited to come here today to look at what the final review was. It was more or less your typical government report. It was maybe written in a little more plain-spoken English than is usually the case for those things. So that's refreshing. It was actually readable, and I guess that's an improvement.

But as I looked at that, I was trying to come up with a better understanding of exactly how to make decisions beyond sort of crying, "The sky is falling!" You can look around and point out all the things that might be affected or that might go wrong. Historically, there have been many vulnerabilities. A bridge is a vulnerability; airplanes and air

traffic control are vulnerabilities; high-tension wires delivering electricity are vulnerabilities. There are lots of ways that you can affect a country's infrastructure short of using computers and some of the high-tech cyber kinds of threats that people are talking about. As we're seen now in Serbia, dropping a bomb on a power station will turn out the lights just as easily as some sort of computer command to do the same thing. Most of the really horrible things that have happened in this country in the last few years have been caused by fairly crude explosive devices placed either opportunistically or inopportunistically, I guess, depending on your perspective, and blowing up buildings or almost blowing up buildings and doing other kinds of damage. They're not very high tech, and they have nothing to do with computers, but they still cause a lot of disruption and a lot of concern.

So as looked at this, I tried to think, "How is the government going to determine accurately what should be protected at what level of security and at what cost? Are there any market signals that might help answer those questions?"

The private sector, I think, makes these kinds of decisions all the time. We, as a private firm, have to make decisions about what kind of insurance we need in terms of our own liability—everything from people slipping on the sidewalk outside our front door and claiming that they're crippled, to a bad trade or a bad business transaction that results in a significant loss, or something that has to be hedged. When you take positions going long or short on one kind of currency or another, you frequently have to balance those bets with other kinds of transactions in order to make sure your exposure is not too heavy in one direction or another.

We also make decisions about what we call value at risk. We're doing risk modeling in our various portfolios. How much money can we afford to lose in any given transaction? We explicitly look at every single trading position that we have, and then create a model to decide, "If the market moves so many standard deviations one way or the other on so many days out of so many days of trading, with a 95 percent certainty, this or that would happen." We have some very bright, rocket-science type guys who do nothing but sit around and do that sort of

thing. So we are in the business of trying to make the adjustments based on market signals, profit and loss results of our business, new technologies, the changes in business environments, and so forth.

On the physical side, we have in my particular firm what we call the disaster recovery program, where we've looked at all of our buildings and how power gets delivered, and what sorts of backups and redundancies we have, and if we have backup trading floors. If there's a problem or a fire, where do we get the hardware, how could we reprogram, where would people come from, and so on and so forth. But in each one of those cases we have done fairly detailed cost/benefit analysis to look at what those problems are and how much they would cost. Then we make the decision on how much money to allocate to resolve those things.

I'm looking at the government and at that list of things that they were referring to, and kind of wondering, since there is no similar dynamic, how there can really be a thoughtful response in terms of what needs to be hardened or duplicated or changed as a result of these threats that have been outlined. I have some problems trying to be confident that there's a process there that can deal with those issues.

Again, let's look at the newspapers, and the Y2K issue. Everybody's very concerned about Y2K and all this money is being spent. Of course, we're beaver away busily in the financial services sector to make sure that trading can take place, and trades can settle, and we can communicate and counter-parties can communicate, and money can move, and shares can move, and all this stuff that will have to happen. There are all kinds of tests and exercises going on.

Then I read in the paper that the FAA was going to do a little check of their system. And so what did they do? They went to Denver to do a test. Isn't it interesting that the FAA would go to the very newest airport in the entire United States of America to test out the technological capability and robustness of that technology? Why wouldn't they have gone to the oldest airport, with the oldest, clunkiest computers—the ones that almost certainly will fail—instead of going to the one airport where, just because they're all brand new, almost certainly 99 percent of the com-

puters are Y2K compliant in the first place? Surprisingly, they passed the test! It was just amazing! I was shocked to see that they actually passed it. But nobody asked the question: "Why Denver, and not La Guardia, for example, or Philadelphia, or one of the other older airports?" It wasn't really clear. But it didn't give me a warm and comfortable feeling that we were seeing anything other than kind of a rigged game.

In the Y2K area we've had all different kinds of efforts, including a lot of inspections where the regulators frequently don't even understand the issues and the questions they're asking. This is not necessarily when we're dealing with the Fed or the SEC, but rather some of the state regulatory entities. You have to understand that we operate in 23 different countries and have I forget how many different regulatory authorities looking at us when you get down to state and local, as well as national, entities, and everybody's kind of got their own take on it. So we have to address all the different questions that we get, but it makes us wonder sometimes about what's going on at the other side of the table.

As a result of this gap that's growing between the private sector and government, there's also a question of trust on the part of the private sector. Certainly in the financial area where I've been, I think there's increasingly a lack of trust in what we see in government. There are a whole lot of reasons for that. Without being too partisan, we could maybe look to the former governor of Massachusetts, who in another context talked about the fish rotting from the head. I think there's a certain element of that going on now.

But the reason I think that's irrelevant is that if you look at some of the solutions that are posed in this critical infrastructures area, they involve the private sector coming to government entities and sharing what will be very sensitive proprietary information. Are private sector groups going to be willing to share that kind of information with the government? Will there be confidence that the information will not end up being sold to the Chinese by somebody? Will that information not walk off with the next employee who then goes out to work for a competitor? Will it not end up on the front pages of the *New York Times*? Right now, there's not really

high confidence and trust that any of those things will not happen.

Even when we look at how important or how serious some of the current events are, is Kosovo, or the whole Yugoslavian situation, a crisis? Not if you look at market reaction. There's been no market reaction to that situation, either here or in Europe. The Dow is flirting with 11,000, up and then back a little bit. This is in contrast to what happened in the Gulf in the early 1990s. There was a market reaction, because the markets did sense that there was a more serious issue at stake there, an oil crisis, and other indicators met that definition of "crisis." I think that's another key issue: when the government makes a big deal out of something that the private sector, at least the financial sector, does not view as crucial. Again, you see a divergence in views.

How does intelligence begin to fit in all this, since intelligence, command, and control is one of the issues that you have talked about and looked at? I think back to something that Dick Kerr, a former DDCI, has said repeatedly, "The intelligence community no longer controls most of the information that it needs." As simple and as straightforward as that sounds, that's actually fairly profound, because historically the intelligence community controlled almost all of the information that it needed to do its job. Increasingly that is not the case. What we're seeing is an intelligence community that is trying to find a role for itself in an era when information is so much more widely and readily available to those who are able to go out and find it, who know how to navigate the Internet and all the various offerings that are there.

There are three fundamental tasks and missions that I think will still exist for the intelligence community if it chooses to adopt them: finding, authenticating, and assuring information. The Internet is great, and there's an infinite amount of information available as a result, but where to go to find that one single answer that you need to a question becomes an issue.

There's also a lot of information floating around out there, and it's not at all clear that the information is accurate. I just pulled something off the Net as an illustration of that. Somebody had sent me some "true

facts," and I'll just mention a few of them. "The average lifespan of a major league baseball is seven pitches. A duck's quack doesn't echo, and no one knows why. The longest reported flight of a chicken is 13 seconds. The highest point in Pennsylvania is lower than the lowest point in Colorado. In Cleveland, Ohio, it's illegal to catch mice without a hunting license. It's possible to lead a cow upstairs but not downstairs. Ten percent of the Russian government's income comes from the sale of vodka. The cigarette lighter was invented before the match."

I found that on the Internet, so those are facts, right? Some of those things I'm sure are true; others, God only knows, and it would take a lot of work to go find out. I guess I'd have to do some bovine studies or something to find out whether you really can lead a cow upstairs but not down. I didn't grow up on a farm, so I don't know. My point is that there's a lot of information floating around out there and there will be value in providing information that is verified, where you can say, "Yes, these are facts, and these are true, and this is indeed the case."

Then I think there will probably be a final piece of the puzzle, which will be to collect those fragments of the puzzle that are otherwise inaccessible to anything other than clandestine sources and methods. I'm not prepared to believe that there will be no role for the classic kind of spying that the CIA does, or the classic kind of signals intelligence collection and analysis that the National Security Agency (NSA) and others do. I think it's just going to be very, very different, and probably be additive on the margins rather than providing the bulk of insight as I think this was historically the case.

One of the areas in particular—and I do not know if you have gone into it in depth—is the whole concept of information warfare (IW). I think in the last 10 years or so, the pillars of this community, in particular the wider national community, have been attempting to get a handle on exactly what that means, what that should be, and what sort of capabilities we should have.

IW is not new. You can find all kinds of ancient examples of efforts to plant ideas and to deceive and so forth. Certainly, the power and the leverage of IW have increased expo-

nentially as various societies have become more dependent on modern means of communication, computers, and so on. But there are a lot of problems with moving too quickly, too aggressively, in that area. For one thing, the United States is by far the most technologically advanced and developed and therefore dependent country in the world. Maybe the second-most would be Japan. So are we building a system that would not enable us to go to war with Japan or with Europe? One has to wonder.

A friend of mine did a study one time looking at the telephone density in Iran. While we have something like 900+ telephone lines per 1,000 people in this country, the number in Iran is about 75. Okay, so you crash the telephone system of Iran. Does that really matter too much to the average person or does that really impact their way of life? You can make the case that it probably doesn't. So what we would think of as being catastrophic, in our context, may not be as urgent in other areas where the systems are not nearly as essential to day-to-day living.

Oettinger: We have on record in the seminar the testimony of a fellow named Kertz, the AT&T guy who built a good deal of the Shah's telephone system.⁵ His account shows that you're right in that it doesn't affect everyday lives, but the Iranian telephone system was used by Ayatollah Khomeini for command and control out of Paris before he came to power, and the Shah was unable to shut it off because the unions that controlled the telephone system were friendly to the ayatollah. So the Iranian telephone system, believe it or not, played a significant role in the access of the mullahs to power.

Fort: My point, though, is rather what would happen if you were to remove it through some new IW technique—actually to shut it off. Would that cause the incumbent regime to collapse?

Oettinger: One of the reasons that the Shah failed to shut it off was that his military was dependent on it along with everybody else.

So he faced the unpleasant choice of either letting Khomeini continue, or making his own military somewhat less potent. I think your point is valid. It's not as deeply embedded in the society. It wouldn't stop as many activities if it were taken away. But it was enough to screw up the Shah's decision making.

Fort: I take your point. You can also then ask, looking at the degree of economic degradation that the current Islamic regime has been willing to live under, a level of economic activity significantly below what the Shah had under his control, if the loss of the telephone system would impact their hold on power or outlook as severely as the Shah's? The point is that there are different levels of dependence.

More important, though, one of the things that has given some people pause is that you've got competing areas in the government. You've got certain capabilities and techniques in the national security community, particularly in the military, because historically they had much greater and more greatly developed IW techniques, even going back to the Cold War. We certainly had some extraordinary capabilities that would have been unleashed on the Soviet Union had the balloon ever gone up in that conflict, and that thankfully we were never forced to use. In fact, there's actually a chapter of history (or so I'm told by some people in the Pentagon) of a very informal effort that existed during the course of the Cold War to manage and influence and impact the perceptions of the Soviet leaders through some of the technologies that we allowed to get through the net that was erected around them. It reached the point where we had, I'm told, such control over their air traffic control system that we had to back off a little bit. There was concern that if there were ever an airplane crash or something, it might have been traceable back to some of the stuff we were doing to the technology that we were allowing to go through, because their air traffic control system was dual use. We wanted to be able to have control if there were actually a conflict.

On the civilian side, particularly in the Treasury Department, there's concern that these techniques and these capabilities not

⁵ See Hubert L. Kertz with Anthony G. Oettinger, "With AT&T in Iran," in seminar proceedings, 1984.

stray into the area of finance and not in any way pollute or negatively affect the financial transactions and the banking process and so forth. The reason for that is quite simple. To a degree that most people are unaware of, the financial system of the world relies on trust. In particular, it relies on the trust among central banks. The most powerful people in the world are, by far, the central bankers of the various countries. They speak their own language. They have their own fraternity. They are really answerable to no one but themselves. They have their own sort of code of conduct, and billions and billions of dollars move on a handshake or a word. It all comes down to trust, and if anything should pollute or negatively affect, in any way, the systems by which the accounts and so forth are maintained, then that trust could be shaken, and with it, literally, the financial architecture of the world. So Treasury, in the last couple of years, has been very outspoken in trying to make sure that none of this IW capability gets out of control and has that effect.

Oettinger: Earlier on in this series, Kawika Daguio of the American Banker's Association, made a similar point, if you recall.⁶

Fort: So I think some capabilities certainly exist on the information warfare side. Those capabilities will evolve, they need to be very closely monitored, and we have to make sure that they're consistent with the overall framework of U.S. policy.

Even after I was out of government and with my previous firm, TRW, I worked for a part of that firm that was involved in some of the IW capabilities, actually building the black boxes and writing the code that made those capabilities real. When I would talk to my former colleagues at the State Department I would ask them, "Are you aware that this, this, or this is happening and what this would mean?" They were utterly oblivious. I was trying to get them in the game, as it were, and told them, "Let me posit for you a scenario where something starts to unfold. You'll go to a meeting and people from DOD will be talking in a language that you'll know nothing about, about programs you're completely

unaware of, regarding capabilities you don't know exist, and wanting to use them as options that you'll be completely unprepared to evaluate in terms of what the impact will be on foreign policy. How will you handle that situation when it happens?" I was trying to get them more engaged in the process and light a fire under them, as it were.

So that's one of the dangers of some of these technologies: capabilities that were not fully integrated into the overall national security architecture, including foreign policy making, and the consideration that you can maybe end up causing a lot more problems than you know. There would certainly be impacts.

So, whither the elephant? I guess that as I look at the elephant, the elephant is the government. It's slow, it's lumbering, it's increasingly vulnerable to that pack of hungry jackals that is the private sector, frequently oblivious to the impacts of new technology, and I'm not at all sure what the story is going to be at the end of the day. Those are some of my thoughts, and I would be glad to answer any questions or react to any comments you might have.

Student: What do you think, as far as the government is concerned, is the most vulnerable place right now to get hit from outside the country? What do you think would be the very number one target that somebody would go for?

Fort: I guess that would depend on whether or not somebody wanted to make a publicity splash, if they wanted to hurt a large number of people, or if they wanted to have a significant and real impact on some key sinew of American power. If it were the first one—just to have a publicity impact or really make life miserable—the easiest way to shake up the U.S. government would be to drop one lane of one bridge in Washington, D.C. You would completely screw up the commuting patterns of the entire Washington capital region. I know this for a fact, because it happened in 1982 when the Air Florida plane hit one span of the 14th Street Bridge and we weren't able to use it for a couple of weeks while they were making sure the bridge was okay, cleaning up the debris, getting the

⁶ See Mr. Daguio's presentation in this volume.

plane out of the water, and going through all that. I was in Washington at the time, and it was an utter nightmare. You added an hour onto every commute, from wherever it was. One bridge, that's all you have to do. Not even the whole bridge, just one span. Let me tell you, if you do that in Washington, or alternatively in New York City, that would be all people would talk about in the chattering classes of the two key areas, and you would have an impact.

Oettinger: But the interesting thing is that you can interpret those same facts as demonstrating how irrelevant the government had already become by then, because outside of the Beltway, who cared? Secondly, one of the people on that plane was the fellow who ran IBM's then massive personal computer business, and while that set IBM back a tad, look at what happened to the personal computer business since then. I'd like to engage you a little bit on this question of where the threshold is for strategic vulnerability as opposed to what you describe quite accurately as the pain felt inside the Beltway. There's a vast difference between that kind of pain and a strategic defeat. It's been a problem figuring that out with regard to airpower, currently airpower in Kosovo. From our reading and Rattray's presentation,⁷ it seems to me that there is a similar problem in this IW question as to when you go from annoyance to strategic vulnerability. You certainly responded to the annoyance part of the question. Do you care to comment on strategic vulnerability?

Fort: If I were to pick out a single strategic target that I think would really have an impact, I would say that if I could blow up one building, it would be the New York Stock Exchange. The New York Stock Exchange represents \$14 trillion worth of market cap and hundreds of billions of dollars that float through there every day. To take that off-line would have a significant impact on the economy of the United States. There would be workarounds, and there are thoughts that you're always looking for the catastrophic, but if you were to somehow blow up the building and all the people that make that

process work and the skill set that's represented there, that would have an impact on the United States. So I would probably put that at the top of my list.

Oettinger: It's an interesting point. What that reflects, though, is a depth of stupidity on the part of the management of the New York Stock Exchange that is close to total dereliction of duty. I say this with some feeling, because it's now about 25 years since a fellow whose name escapes me for the moment created a new company called AutEx, for Automated Exchange. His idea was to do trades off the floor of the New York Stock Exchange, and essentially little by little replace it. Of course, some of that is taking place today, but it is still not full blown.

Showing how an institution can resist, I was called in, along with a couple of colleagues from Arthur D. Little, Inc., by the New York Stock Exchange to develop a countermove to the move by AutEx to compete in block trades. The technology was not up to handling anything but big block trades. The economics of it suggested that we should put the equipment in northern New Jersey where both space and phone lines were cheap and so forth. The management of the New York Stock Exchange insisted on cramming it all into that lousy little building because they wanted to maintain the illusion of essentiality and the value of the seats on the Exchange, et cetera. Twenty-five years ago the technology wasn't quite up to replacing them, but it sure is today, so why anything of any value is still crammed on the floor of the New York Stock Exchange had a good deal more to do with maintaining theatrical appearance of a value of the seats on the Exchange than any operational requirement. Any sensible manager concerned with survivability, even under milder attacks than you've been describing, would long ago have dispersed the damned thing out of that stupid building. So we have met the enemy and he is us.

Student: Living in D.C. for about six years, I remember when the Memorial Bridge was closed down about three years ago because of a bomb threat. That happened a couple of times in the span of about two weeks. When-

⁷ See Major Rattray's presentation in this volume.

ever I called home and complained to all of my friends, they were like "Oh, gee, really, well, but you know what's happening here on the farm, da, da, da, da." You're right; it didn't make any difference. I guess I wonder sometimes what would happen that would affect the farmer in Arkansas and the Wall Street banker at the same time?

Fort: That's why I picked out something that is such a nerve center of trading: the Chicago Board of Trade, New York Stock Exchange, and to a certain degree the NASDAQ. Those nodes are essential, and they affect what the farmer is going to get for his crop, and what is in your retirement account, and the stock of your company, and its viability. It's all of those things.

Student: If someone were to take out the Chicago Board and the Stock Exchange at the same time, how long do you think it would take us to recover from something like that?

Oettinger: Daguiro would say probably not a long time, because it would be in their commercial interest to have a certain amount of backup.

Fort: There is undoubtedly some backup, but depending on whom you're talking to, it's not just the building, but the skill set that's inside. It's really more the people than the machines. I think the machines are relatively replaceable. Something could be kludged together without a lot of difficulty, but you either have that skill set or you don't.

Oettinger: Let's pursue that for a moment, because the history of strategic bombing, and the war in Vietnam, and the resilience of Yugoslavia under the current onslaught, suggest societies can absorb a lot of punishment. It's not clear to me why, when others have been able to withstand severe assaults, this society would be so much more vulnerable.

Fort: Number one, I was thinking not so much severe assault as pinprick, if you go after just the New York Stock Exchange and collapse that building and leave everything else around it standing. Number two, I think we have been almost invulnerable to a lot of

that deprivation for a long time. When was the last generation that really suffered any sort of deprivation? You really have to go back to World War II and the Depression era, when there were shortages and rationing and fear, at least at the margins, of invasion or bombing maybe in California. We had U-boats off the East Coast and so forth.

Oettinger: Long Island.

Fort: You really have to go back that far. We've been so distant from those kinds of problems for so long that it's far outside our experience. What would our reaction be if we were suddenly to come under any kind of bombardment? I don't know. Thinking back to the World Trade Center bombing, they had apparently considered juicing their explosive with nerve gas. If they had been successful in that, they would undoubtedly have done a lot more damage than they did. The bomb was sort of a fizzle. If it had been as strong as they hoped, it would have actually collapsed the tower, and that would have been catastrophic in the extreme. Tens of thousands of people probably would have been killed. If they had used a nerve gas mix, then there would have been that many more people in the immediate area who would have been affected. So we've missed some of those kinds of things, by the grace of God, I guess.

Oettinger: If it would have taken out Merrill Lynch, Goldman Sachs would have done better.

Fort: Maybe, but there are linkages. Sometimes we buy their commercial paper and they may buy ours. It's all a seamless web.

Student: We were talking about where you draw the line. Although Merrill Lynch and Goldman Sachs are competitive in nature, they are so tightly coupled that you don't really want to see Merrill Lynch die at the expense of some other things and Goldman Sachs survive. That's not the scheme.

Fort: We wouldn't want to see Merrill Lynch destroyed in the catastrophic sense that would affect the mechanisms and the systems that we all share. If we can defeat them on the

business playing field, where we so outdo them in the sense that we make so much more money and they lose money, that they fail as a business or someone else comes in and buys them, then that's okay within the context of economic competition. But we wouldn't want anything to happen to them as a part of the infrastructure because that would create a hole that would probably damage everyone else as well.

Student: I would like to draw the parallel between government and business sector activity. Where do you draw the line between what is considered to be the government's responsibility to protect infrastructure, like the stock exchange or the Memorial Bridge, and where does the commercial responsibility come in?

Fort: It's a good question. I think the private sector, in particular in my business, was able to make that determination with a lot more clarity and certainty than the government can. First, we can put a cost on whatever it is we're talking about. Therefore, we can make the trade-offs between how much to spend versus what the actual threat is, and how many additional dollars need to be taken, and how much security you want to buy for that. The government is very good sometimes about making edicts and passing laws, rules, and regulations saying that since you have *this* much security, that's 10 times as much as you need, or only 5 times as much, or exactly what you need. There may or may not be the analysis to back this up. There are certain areas where you may want to have 10 times more security than you need if it's a really important issue like, as we said, nuclear weapons, but we now know that's apparently not such an important thing. In other cases it's less crucial.

I'll give you an example that happened recently that was to all intents and purposes a private sector disaster recovery operation. It was last September. I don't know how many of you were following that or were aware of it. Long-Term Capital Management was a hedge fund based in Greenwich, Connecticut. They had about \$3 billion of capital that they had leveraged anywhere between \$250 billion to maybe \$1 trillion. Nobody was

really quite sure where that money was with all the leveraging that they had going. A lot of financial institutions and individuals had invested a considerable amount of money with them, or had gone in on deals with them. I will say that Goldman Sachs did not have exposure to Long-Term Capital. We had not lent them money, but other firms had. Because of the difficult market situation, a lot of their bets were going the wrong way. They went into the New York Fed in August and basically said, "We can't meet our margin calls. We're in trouble." When they started looking at what that meant and what would happen if they collapsed, the answer was that nobody was sure. Maybe just Long-Term Capital collapses and their capital goes away. If you were an investor, you lose, but if you weren't, hey, it's no skin off your teeth, right? But at the end of the day, pulling in all of the major financial institutions, including my firm at the very senior level, sitting around a table very much like this, kind of going through what will happen if these guys collapse, the answer was they didn't know.

So what we did, under leadership of the New York Fed, was cobble together a bailout package for Long-Term Capital. Different banks anted up between \$250 and \$300 million, and fed in new capital. The firm was now able to meet its margin calls, and was able to unwind the positions that it could and maintain other positions. We're actually making money on our \$300 million investment. They had good positions, but they were just in a difficult situation, and couldn't sustain them.

Oettinger: So it was a cash flow problem?

Fort: Yes, in effect. They were just overextended, and when the crunch came they couldn't keep up with it.

I cite that because Washington *qua* Washington was really quite oblivious to what was going on with Long-Term Capital. Basically, the health of the Western financial world was hanging in the balance, and Washington didn't have a clue. My boss went down to Washington to have dinner with a half dozen very bright members of Congress right about the time this was happening. This was even in the *Washington*

Post, on the front page, above the fold, so it wasn't an issue where they could say they didn't know about it. These guys were asking questions like, "Is the SEC more important than the Fed?" Based on the questions that were coming out, you would never go broke underestimating the financial IQ of Washington. In effect, in this case, this was a private sector solution to the problem, the Fed being not really the government as you think of the government. It's at its own level. From the Wall Street perspective, there's God Almighty, there's Alan Greenspan, and then there's Will McDonough (president of The New York Federal Bank), kind of in that order. Then there's nothing below that. It was them sitting down with these private sector institutions to resolve this problem, and it was only well after the fact that Congress said, "Oh, oh, maybe there's some problem here. We need to check into this and have some hearings." They have, and they're looking at some solutions.

Where to draw the line? It's a hard question to answer. You have to look at what issue you're going to talk about. There are some things that I think will remain clearly within the province of government. If it's a straight military type of issue or capability, that's still very much in the government's area of responsibility, although I've heard some people say that the government should look at contracting out even military activities as well: that there's no particular reason why government should have a monopoly on force as long as it is politically controlled. Maybe we're heading in that direction.

I used to be a subscriber to a magazine called *Aviation Week and Space Technology*. I've stopped subscribing, but one of the last issues that I read was looking at unmanned aerial vehicles, UAVs, and at the kind of capability that you could have with a UAV versus a manned aircraft. You could have a platform that would go at Mach 3, and it could perform 20-G turns, whereas if a human body gets about 9 Gs, you pass out. That's about the max even with a G-suit. With a snap turn at 20 Gs doing Mach 3, you can basically break the radar lock of a surface-to-air missile. Then all you've got is basically a joystick and some teenager can sit there and move the thing around. If you've got that kind of capability, what does that do to the

traditional, conventional military infrastructure? Do you need to have the whole range of capabilities we've always thought of? I think that's a few years off, but it's clearly within the time frame where you can talk about it and start thinking about it.

So, to answer your question, you have to say, "What area are we talking about?" Even in areas that are very important, as was the case with Long-Term Capital, that was more of a private sector response than it was a government response.

Student: In the area of infrastructure protection, what is the relevant course?

Fort: I think the government would probably be best at trying to define certain minimum standards and thresholds, such as, if you're going to build a building, the concrete has to be of a certain viscosity, and the steel has to be of a certain tensile strength so the building doesn't collapse. There is a building inspector who will go around to make sure that's the case, and that the asphalt they put down on the street is *this* thick and not *that* thick, so that the potholes won't make the street buckle. The government can create a building code, whether it's for a physical structure or whether it's for a virtual structure, and say that it has to meet the following kind of criteria, and establish that, and then, using regulatory authorities that are inherent in government, make sure that the standards are met.

I think that's probably a reasonable activity for government, but not to make the standards so onerous, or so strict, that they make the systems untenable. When I was in government, there was a secure videoconferencing system that had been created in the 1980s to link all of the key decision makers—the President, the secretary of state, the SECDEF, and so forth. This used to be very super secret; it's not anymore. The idea was that if there were a crisis, instead of everybody getting in their car and going to the White House, you'd just get into your little bubble and get on the TV, and you could just sit there and talk to all these guys. You'd have your own little TV studio down in your basement somewhere, so that you didn't have to leave the building. It was close at hand. It would be much more efficient, right?

Well, it was a good idea. So they built the system at some expense because it had to be secure. The NSA was handling the security. They were going to be the ones to make sure that the signal for the television was encrypted and secure and that nobody could tap it or intercept it or do anything like that, because if the President's talking, you want to make sure that nobody else is listening in. That's fair enough.

So I went to the meeting where the NSA guys were, and all the users—the Defense Department, the State Department, the National Security Council (NSC). I was the Treasury representative, and we did it over at the NSC. The NSA official was explaining that in order to have security on this system, each one of the principals—that is, the secretary of state, the President, and so forth—would be issued a PIN (personal identification number) of nine digits, randomly generated, that would change every six months, and they would have to memorize it.

I'm sitting there listening to this, and I'm looking around the table, wondering "Does anybody else think this is insane?" This guy is very serious. He wants a random, nine-digit PIN that will change every six months. We'll show it to the President, he will have to memorize it, and then we'll destroy it, and that's to get absolute verification. They had to enter in their PIN so the system could know that this is the President, or this is the secretary of state, and not some impostor. I was sitting there listening to this and finally I asked, "Can I say something? I just want to tell you that ain't going to work." All the NSA contingent said, "What do you mean it won't work? We thought about this. We spent millions of dollars proving that this is the only conceivable" I said, "Guys, I'm just here to tell you that there is no way my boss is going to remember a random nine-digit number issued every six months. It isn't going to happen. So, if that's what you're depending on, then the world's going to blow up or something while he's trying to put in the right number."

This was a case of setting the standard a little bit too high, which is what sometimes happens when people in the government are left to their own devices without, shall we say, market forces or, in this case, reality (because I was a government person) saying

that this was a dumb idea. Sometimes the standards can be a little bit too unreal. Especially in some of these new areas, that's where, frankly, the government's skill set is not that good. The real capability for understanding the virtual dimension is not in Washington. It's in California; it's in Washington state; it's in Massachusetts; it's somewhere else. If those standards are going to be defined, then hopefully the government will take into account the kind of input and advice they will get from those who do have the capability to come up with standards that are reasonable and proven.

Oettinger: Jim Lucas, John Grimes, and Richard Beal provided accounts at this seminar of that period of White House systems design.⁸

Fort: They named a room after Richard Beal, 208 in the Old Executive Office Building. That was his meeting room.

Oettinger: Beal was a speaker at this seminar. You will find him in the record. That was an experience, because we do promise all speakers, as we promise you, that they'll have a chance to review their talk before we publish it. But Beal had the ill grace to die before I could get his speech reviewed. Did you ever try to get a manuscript cleared posthumously by the NSC security people?

Fort: I digress. Talking about infrastructure, that reminds me that Room 208 is a high-tech conference room that they decided to build in the Old Executive Office Building down in Washington. It was on the second floor and it faced south. The idea was that they were going to build a super-secret room, and it was going to be completely shielded, and you would be able to have a discussion at whatever level, and the electronics wouldn't leak out. Fine. They've got this old, ornate

⁸ See Richard S. Beal, "Decision Making, Crisis Management, Information and Technology," in seminar proceedings, 1984; John Grimes, "Information Technologies and Multinational Corporations," in seminar proceedings, 1986; James W. Lucas, "The Information Needs of Presidents," in seminar proceedings, 1990.

building there, with these old, ornate windows and everything. Well, basically, they decided that they were going to sheathe the entire inside of the room in copper and then do the finishes and so forth. They did that, but what they didn't think about was that the windows were left open facing out, so you can stand out on the street, look up, and see this window, and there is this copper sheet over the window. So you start to think, "You know, if I'm a terrorist and I've got one rocket-propelled grenade, which window am I going to fire it at?" I said, "Did you guys think about lowering the venetian blinds one last time, and then putting the copper shielding up, so people just see closed blinds there and you don't give away the fact that maybe there's something going on in that room?" It was like, "Oh, we really didn't think about that." Common sense sometimes is a good commodity.

Student: Just an update: it's no longer nine digits. Now when you enter the Situation Room it's a handprint. You just stick your hand in it, it reads your hand, and then you get into the room, at least in the Pentagon. I don't know about the other Situation Rooms.

Fort: I don't know; I haven't been in one of those rooms in a while. It was one of those great ideas that actually mutated. The idea was that when you hit DEFCON 2 or something, the President and the others would all go to the room. But it now has just become a group videoconferencing tool, basically for minions to get together and do coordinating and have meetings instead of everybody—the cast of thousands—having to get in cars. The principals still want to get together, and if they want to sit in the basement of the White House, fine, but everybody else can get together on TV in a secure loop. That has value, so it's actually worth the investment today. It took a little while to get there.

Student: Going back to the Long-Term Capital case, where do you see a problem? I think what you said was the solution. Why would you want to get a government body like Congress involved in a situation like that where instead you have specialized, highly technical agencies?

Fort: You absolutely would not want the Congress involved.

Student: Right, but I sort of sensed your disappointment in the government.

Fort: No, my comment was more that I was amused that Congress could be so oblivious that something this urgent and this important could be going on and they didn't have a clue. Even when it was reported, they weren't aware of the seriousness of it. It was like something going on in their backyard, and they didn't even know anything was happening until after the fact, when finally somebody knocked on the door and said, "You know, guys, this really was serious, and the whole world almost came to an end." Then they said, "Oh, okay, now I get it, so we'll have some hearings and we'll talk about it." But would I want them involved? No, no, no, no.

Oettinger: You're coming back to something which you pinpointed early on in your remarks, when you asked whether the situation we're coming into was unusual or back to normal, and it seems important to understand that the United States government was designed to be irrelevant. The periods where there was an ascendancy, like the Cold War or the Civil War and so on, are the unusual periods. What Randy is describing is a return to a state that has historically been the prevalent one. The unusual periods are the ones where the government is concentrated and central and so on, as opposed to the times when, at least in the United States, the less said the better.

Fort: You've seen the recent news of AT&T trying to buy MediaOne and ComCast, and what AT&T is trying to put together in terms of its strategy. Microsoft is going to come in because they want their software on top of the television in whatever noncomputer box is there. AT&T is trying to create a solution that will give them control over the pathways, be they cable, television, telephone, or whatever.

I tell you right now that it's clear that the folks down in Washington are just spinning. They don't know what to make of this. "Is

this a good thing? Is this a bad thing?" But the market is just moving right along at about 1,000 miles an hour and is well down the road, and for the government it's just catch-up. The Justice Department, the FCC, all these guys are going to be trying to figure this out. Meanwhile, by the time they do, there'll probably be a half dozen other mergers and acquisitions that will be reactions to what AT&T has done, so that whatever they thought they were doing will have changed because now the picture is no longer what it was when they got concerned. We've even seen that in the Microsoft case a little bit. AOL and Netscape suddenly came together, whereas they weren't before, and the judge sort of scratched his head and said, "Isn't this important?" Yes, as a matter of fact it is. It does change things.

So, it's government trying to catch up with things that are really moving too fast and changing the landscape so quickly that it's a challenge for them. That is why I think it's better for government to try to define some rules and then get out of the way, rather than trying to micromanage, which has been the history over the previous decades.

Oettinger: Talking about smart people, I don't know you if you noticed that the CEO of MediaOne, a guy named Amos Hostetter, got his picture in the *New York Times* this morning in connection with that story. He's a local boy made good, whom I ran into when he was starting what was then Continental Cable and I was chair of the state cable television commission. Years later, I tried to raise some money from him for my research and we met in his office down at Lewis Wharf. We went out for a drink at a bar next door in a building that he owned, and a bar that he owned, and I ended up paying the bill! So it's hard for the government to keep up with a guy like that. If he can't pay his bill in his own bar, the private sector can beat them at anything.

Student: What's your opinion of this regulating by reaction, as a tactic? What is your sense of what comes out at that level? The government stays idle when markets concentrate, and a dominant position develops, and then at a certain point, poof, comes up with

big antitrust legislation. Do you think that this happens at the right threshold and that the solutions that come out are appropriate, generally speaking?

Fort: If things happen as you posit, then people in the private sector side have probably not done their job, because at least informally you are smart to identify this. I come from the perspective that government can't help you, but can hurt you, and so you don't ever want to be so arrogant to think that you can't be hurt by government. That's really been Bill Gates's problem in this whole Microsoft thing. He had been told for years, "You need to be doing more lobbying in Washington. You need to be doing more to get your story out." Here's a guy who is worth multibillions of dollars. So if he had just taken even a tiny fraction of that, he could have basically bought off every congressman ... in a legal way; I don't mean illegally. He could have gone into every congressional district in the United States and done something that would have burnished the image of Microsoft and Bill Gates so that when he hit a rough spot, which he has, then everybody would say, "Oh, leave him alone. They're doing fine; he's a good guy; blah, blah, blah," and it never would have happened.

If you're going to be involved in something that's controversial or aggressive or whatever, you always have to be looking ahead and then identifying the groups that could possibly cause a problem, and then working with them to make sure that they understand the picture from your perspective and that they have the information that you want them to have, and your spin and explanation, so they're not surprised. Then you have a dialogue, and if questions come up, they're not as hostile as when the dialogue began.

Oettinger: To reinforce that, this morning's account of the AT&T deal is absurd. AT&T's relationship with ComCast, whom they bested in that deal, is exactly what Randy is saying. They gave ComCast an elegant out, and sold them a whole bunch of subscribers to help consolidate their territory. They've got a friend. This is important, because the

one place where I mildly disagree with what Randy described is that yes, the congressmen are important, but what introduces the government into this kind of situation is disgruntled competitors. When Randy said, "Make peace with the various groups," that was to me the key. The congressmen are incidental because the congressmen don't get wound up unless some disgruntled competitor winds them up. So, I would slightly amend his statement about Microsoft working Netscape, working AOL ...

Fort: In fact, it was Novell and the others from Utah and California who got the Congress after them.

Oettinger: So it was the competitors who brought in the government.

Fort: If you do your job right and you anticipate where the opposition will come from, then you figure out how much you can neutralize in advance, or turn to your side, or possibly alternatively build up some counterforce against that. If you're doing your strategic planning and your political calculations correctly, then when you take a step that's going to be controversial, you'll be able to manage that. But you can't just sort of spring something without having prepared the ground in Washington. You need to do the spade work in advance in order to avoid that.

Student: There was an interesting point at lunch about the total lack of association between government and the private sector, or the perception abroad that totally distinguishes U.S. government action from private American enterprises going in for a market. Those companies are not influenced at all. The criticism that is directed to the government doesn't touch the business that you guys do in Europe or anywhere else. How do you see the partnership going, the U.S. government helping U.S. businesses, especially in your sector? Do you want that help? Is there any? Is it effective, or would you rather keep the current dissociation?

Fort: For those of you who weren't at lunch, the question was whether or not what's going on in Europe right now, NATO succeeding or failing, would have an impact in terms of how we view government. We basically think that we can do just about everything we need to do without any government intervention one way or the other. Right now capital markets are among the most open markets available, and Malaysia is one of the only countries that's put up any sort of capital market obstacles in the recent past. The trend has been quite the opposite. Everybody's taking the barriers down and allowing foreign money to come in. To be fair, that is a result of many years of GATT (General Agreement on Tariffs and Trade) negotiations and a lot of probably bilateral investment treaties and so forth that have removed historic barriers to investment and to the flow of money and so forth, so that we are able to go just about anywhere we want to go to do business these days. The places where we probably can't go are the places we really wouldn't care to go, such as some of the countries in Africa, or North Korea, or a few other places where there may still be rules. But there's no money to be made there anyway. At the level where we operate, it's a fairly open system, and rather than putting up obstacles, to the contrary, countries are doing everything they can to attract foreign capital because they understand what that can do to help build whatever sort of society they want to build. We're facilitators of that, so we're welcomed for the most part.

For us, it's basically kind of a wary thing with the government. We have regulators whom we have to deal with. We have the central banks. We follow all the rules and do everything, but in terms of looking to them for assistance, it's basically, "Just don't get in our way."

Oettinger: On that note, I want to thank you so much for coming up, and for a terrific presentation.

Thank you all. It's been a great semester.



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