TRANSCRIPT OF

DDI REMARKS TO THE

SECURITY AFFAIRS SUPPORT ASSOCIATION

13 NOVEMBER 1984

I'd like to thank you very much for the invitation to stand in for John McMahon. I bring you greetings from Bill Casey, the Director of Central Intelligence, and from John McMahon as well. I could be secretive about why John McMahon couldn't come, but unfortunately, thanks to the newspapers, you know everything we are doing--and a great deal we are not.

I'm very glad to be here with you tonight. I must say that after the drive out from San Francisco this evening, I'm glad to be anywhere tonight.

Speaking to you on software is particularly inappropriate for me, as a specialist in Russian studies and an historian. But I am no stranger to inappropriate things. When I was on the NSC staff during one administration that shall remain nameless, I was present when the President of Italy attended a state dinner in his honor. The entire White House was decorated, inappropriately, with thousands of yellow chrysanthemums--the Italian flower of death. I was present when, inappropriately, at a state dinner for German Chancellor Schmidt--a visit where the principal topic of conversation had been offset for our troops in Europe--the afterdinner entertainment was Joel Grey singing highlights from Cabaret, ending with the song "Money, Money, Money."

So even though my talking to you about software is inappropriate and potentially embarrassing, to use the old saw, my job here is to speak and yours is to listen and with any luck we'll finish at about the same time.

This past summer, the Security Affairs Support Association became a professional organization, a change that allows government employees to seek membership. This confirms the goal for which this organization has been well known, to create an organization in which the security affairs interests of government and industry can find common meeting ground to discuss issues of mutual concern. This arrangement makes good sense, because it takes advantage of the talents, capabilities, and initiatives in both the private sector and in government. We all know that neither has monopoly on brains or talent and certainly not on money.

This country is unique in the ways in which government and private industry work together. In our work we have long depended on you and the companies you represent and many others to build large technical collection systems and design and build computer hardware and software. Beyond this, however, we also have depended on your expertise and your facilities to help us understand and forecast Soviet weapons systems. More recently we have been turning ever more frequently to the private sector for assistance on a broad range of other areas, from new technologies to international economic problems to scores of other subjects covering more than

2

fifty different disciplines. Just this year, more than 1,200 CIA
analysts attended more than 500 conferences, many of which were
sponsored by your companies and others in the private sector.

In the U.S., we rely on a combination of patriotism and profit
motive to make our system work. And I believe the evidence suggests
that the system serves us well. New technological devices and new
analytical techniques that enable us to understand growing threats
to U.S. and its people are based on the synergistic nature of the
relations between private industry and government.

I could cite several examples to support my contention that our
system of private and public developments work well. Our achieve-
ments in space certainly prove the point--and our ability to create
new and more effective defense systems also requires close working
relations between the public and the private sector. There is
little question that developments in computer world count as well.

Before addressing the major subject of your conference, and of
my talk on Agency software, I would like to give you briefly a more
general picture of where we've been and where we're going. The last
four years have seen remarkable growth in the Intelligence
Community's budget. Now while this now leveling off, it has enabled
us to restore many of the capabilities that we lost in 1970s. These
funds have allowed us to bring on board operations officers,
analysts, technical specialists, and support personnel.

3

Speaking very narrowly of my own organization, the Directorate of Intelligence, our reorganization three years ago--undertaken, by the way, by John McMahon, my predecessor--to integrate our analytic disciplines has created a quantum jump in both the quantity and the quality of analytic products we can deliver to policymakers. Our analysis has taken on a new dimension because political, economic, and military analysts--and analysts from other disciplines as well--are working together to create a multifaceted approach to problems.

In the last four years, we in CIA for the first time have developed and implemented a comprehensive research program covering a staggering number of countries and issues. We devote now about half our analytic resources to the Soviet Union, from its economic and political problems to its military strength, future weapons programs and strategic intents. The other half of our efforts is focused on problems as diverse as terrorism, narcotics, political instability in key countries, international energy and resource development, nuclear nonproliferation, the gray arms market, technology transfer, forecasting food supplies, tracking wars and insurgencies worldwide, monitoring Soviet compliance with arms control agreements, scientific and technical developments worldwide, and many more. We produced more than 800 major research assessments last year, along with our current intelligence. More importantly,

this dedicated research effort is establishing once again the strong base of information, data, analysis, and expertise to support the policy process.

The production of national estimates and the speed with which we are producing them has also increased. Estimates can sometimes be the source of controversy. You can read about most of them in the newspapers, but we are making an effort to provide decision makers with the message they have to have--not necessarily the message they want to hear. I can report to you that in recent years, thanks primarily to the efforts of Bill Casey, a spirit of real cooperation and mutual respect perhaps unique in the history of the Intelligence Community has developed among the principals of the intelligence agencies. One reason for this has been a strong effort to insure that all hypotheses, alternative scenarios, and con- clusions are heard and reported to the policymakers. Those agencies that disagree with the majority view spell out their differences in the estimate. And we no longer relegate those minority views to footnotes them but they are embodied in the full text of the estimate. We make tough calls, calls which are sometimes painful for policymakers. But we are meeting our commitment to provide the best judgment without partisan flavor or political taint.

On the collection side, progress also has been made. We have rebuilt our human intelligence capability after the severe cuts of

5

the last administration. While the young people we are hiring today lack some of the language capability and area knowledge we would like, still they are remarkably sharp and demonstrate a talent and a drive that gives us confidence in our future capabilities. Indeed, I would say that sometimes their skills are awesome.

CIA received more than 150,000 inquiries about employment last year. Our recruiters are meeting receptive audiences on college campuses these days for the most part. And it is interesting to note that there appears to be renewed interest in government service in a more general way.

On the technical side, investments in new technical systems are beginning to pay off. This means a tremendous increase in the quality and precision of intelligence information we can collect. It also means that the volume of data will substantially increase. This suggests that we must begin to invest in processing systems to match our capability in collecting raw data.

In many ways, in my view, we are better prepared to process and use information from existing and new technical systems than we are to deal with the growing volume of human source reporting, and most daunting of all, the tidal wave of increasingly vital overtly-available information, particularly in the scientific and technical

6

arenas. We have to avoid being overwhelmed by this volume of information from all sources, and that is where developments in computers, software, and other new technologies really must help us.

As I indicated at the outset, this is a very tough audience for me, student of Russian history, to address on software, since most of you are experienced professionals and are well versed not only in sophisticated computer techniques, but you know a good deal about intelligence applications as well. But like many managers in industry and government, I am learning quickly. I'd like to make a few brief remarks about the present state of our computer activity and where we are headed.

First, and I suppose, partly as an element of self confession, let me amplify just for a moment on a problem I mentioned lightly a moment ago. A serious problem for both American industry and government is the computer illiterate senior manager. To tell the truth, and I don't think I'm telling you new truth, important decisions on computers and ADP equipment are made by managers who hardly know a mainframe from a Mack truck. What do we do? We turn to the computer specialists in our own organizations who think narrowly and protect turf and for whom larger scale planning, net-working, and experimenting is anathema. And so we sometimes develop inadequate systems that can't talk to each other and meet only today's needs. It seems to me that an imperative course, not just for those of us in the Intelligence Community, but in industry

7

as well--and your group may be the one exception--is to bring senior

managers into the computer age and enable them to know enough to use

effectively experts and then to make sensible, broad-ranging,

future-oriented decisions and guidance.

Now let me turn to CIA specifically. The major problem in the

use of computers at CIA revolve around compartmentation and

security. Unlike organizations of similar size in the private

sector, we have to have a system that operates on a need-to-know

basis, and that may involve only a handful of people. We must

protect ourselves at the same time against "hackers" from the out-

side, and the possibility of "moles" from the inside. This is a

major reason why we have spent so much time and money developing our

own software--we have found that many private sector applications

are not sufficiently stringent or secure for our purposes. We also

realize that, from the perspective of private industry, the costs of

developing a package for government that has no other application

often is not profitable.

The CIA is now operating five major computer systems, all using

the same general architecture, but each almost completely in-

dependent of the other. We have a system for analysts, one for

operations, one for administration, one for physical and personnel

security, and one for processing and analyzing data from technical

collection. Each of our systems use similar but distinct software

applications, all developed in house. For example, our admini-

strative system includes electronic mail. We had to develop

8

software that would allow access based on individual clearance and need to know: the system had to be impervious to serious efforts at penetration as well as idle curiosity.

In contrast, though, some of our needs not so unique. The agency is moving away from reliance on huge mainframe systems to increasing use of computer networks and even self-contained personal computers. We envision systems where many professionals will rely on personal computers for much manipulation of data, and where standard forms of software--spread sheets or word processing programs--can be bought over the counter. This will allow us to shift from software designed by ADP professionals for other, if you will forgive me, "computer freaks" to systems that are more user friendly. Indeed, the use of personal computers may create new security problems for us--we may have to guard not only against analysts taking their papers home with them but also their floppy disks.

We have high hopes that the fifth generation of computers--and developments in Artificial Intelligence--will have great application at CIA. We will rely on A.I. in expert systems applications to enable us to detect indicator anomalies for warning, to synthesize combinations of data for analysis, to scan mail to pick out critical messages, or to pick out gaps in our knowledge. Applications of A.I. in processing huge quantities of raw data

9

without having to translate raw data into standardized formats, as we now do should help separate the wheat from the chaff, especially in SIGINT and imagery.

A.I. should do some things for us that will enhance our ability to support the policymaker. More sophisticated simulation and modeling techniques will increase our ability to predict alternative outcomes of future events. A.I. should help analysts compare dissimilar forms of data--imagery, SIGINT, regular text--without having to put everything in a standard format. A.I. might help us package our inputs to the policy process in more usable forms to meet consumer needs, and A.I. may help shorten the production cycle. Another application might involve accessing more data on a real time basis, especially in crises. So, it appears that we are only beginning to tap the potential of the next computer generation.

Frankly, progress in the area of A.I., in our view, is likely to be painfully slow. Promises of quick advances with practical applications should be treated with some skepticism. We understand the reasoning process that experts use to generate judgments, but much is "intuitional," especially when dealing with softer data. I can't tell you how many contractors have tried to sell me software that will enable me flawlessly to predict the next action of the Soviet leadership. Until we can understand more about how the intuitional process works, it seems to me, it will be difficult to write "expert systems software" that can duplicate what

10

analysts do. Despite these problems, A.I. offers much promise, and we will look to the research and industrial communities for advances in these areas.

On the operations side, we hope to move toward a paper-free or almost paper-free environment. This is especially important in protecting overseas systems, although I might add that judging from the newspapers, it would leave a number of Iranians unemployed who are still trying to keep piece together the papers that went through the shredder in 1979. A similar system on the production side may enable us to develop a high-quality product for key consumers without going through the printing process. And frankly, I believe this outcome is nearer than virtually any policymaker believes at this point.

CIA, like many private firms our size, is suffering a great software applications backlog. Just as in the private sector, we have too few programmers and too many jobs. Our present back-log probably amounts to perhaps as much as some 400 man-years.

Clearly, we should be working together to develop more effective and efficient programming methods. One way to solve the problem involves more end-user programming, and this will become more practical as we move away from large central systems to desk-- top machinery. We will also be aided in the future by the fact that a new generation of employees is increasingly computer

11

literate. New professionals are running about 50 percent computer literacy, thanks I suppose to video games and the presence of computers in high schools and colleges. We've even gotten our most senior officers to begin using computers--we've all had to take some training and learn some simple computer language so that we can communicate with each other without having to meet in Executive Dining Room.

In terms of the Intelligence Community, we have developed several ways of working together, although much of our software has been developed on an internal agency basis. The Community does try to share ideas, information, and technology, including software where possible, although we do have to maintain compartmentation. Air Force and DIA have developed a modular architecture called MAXI for sharing intelligence and processing messages for analysts. Eventually, the Community will have some 33 facilities for such sharing--15 of these are now on line. Shared SAFE systems between CIA and DIA are now completing Phase I which permits shared message retrieval capability. Phase II will take us into 1987-88 time frame.

The Intelligence Community is also sponsoring the Community Information Retrieval System. If successful, this will bring together processing assets from five networks at DIA, NSA, Air Force, CIA, and NPIC. The major difficulty involves security and standardization problems. The Community is also working toward developments in Artificial Intelligence. CIA's Dr. Phil Eckman

12

chairs the Artificial Intelligence Steering Group--with membership
from a dozen agencies and federal components. Because of costs
associated with A.I., we want to avoid duplication of effort and
circulate information about the subject. CIA will sponsor its third
annual Community-wide symposium in March of 1985. This will bring
together members of the Intelligence Community and private industry
to exchange ideas of mutual benefit.

ADP now consumes a substantial portion of CIA's resources and
space. We're now well along in construction of a new headquarters
facility to accommodate people displaced by computers. Our ex-
perience is probably typical of organizations our size, and our aim
is to stabilize ADP costs and perhaps even drive them down One way
to do this is to push the state of art in selected critical areas
and not wait for it to catch up with our needs. This brings me back
to theme I raised at the beginning of my remarks. The synergistic
nature of relations between intelligence organizations and private
industry should boost the speed--although I hope not the cost--of
solving software problems.

Let me conclude on a broader note about why all of this
matters. I believe strongly that the Intelligence Community
increasingly is the only place in the national security arena that
is devoting requisite energy and resources to examining the longer
range problems that will face our country in 5 or 10 or 20 years.
Indeed, with our unique and comprehensive collection and analytical

13

capabilities we may be the only element of government (and perhaps industry too) able to cross the boundaries of bureaucracy, substance, and specialization to give our leaders the information they need to guide the country in an increasingly interrelated and complicated world.

Whether we are talking about future Soviet weapons, foreign energy supplies, the impact of new technological developments on Third World exporters of old raw materials, great new immigration flows around the world, nuclear proliferation, famine in Africa, or the impact of new foreign developed technologies on our national security, we are in the forefront, helping to inform, warn, and educate our leaders. But information is key. We cannot do this without great advances in our use of computers for information handling, new analytical techniques and, ultimately, A.I.. And that means software; and that means you. We need you. We welcome your partnership in service to the nation.

14