

**Testimony of Tom Romeo
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**Information Policy, Census and National Archives Subcommittee
Oversight and Government Reform Committee**

**Hearing on Status of the Census Bureau's Risk Management of
Information Technology Acquisitions for the Upcoming 2010 Census
December 11, 2007
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Mr. Chairman and Members of the Subcommittee, thank you for this opportunity to testify before you today on the status of information technology acquisitions for the upcoming 2010 Census. My name is Tom Romeo and I am Director of Federal Services for IBM's Global Business Services, Public Sector.

IBM is proud to be involved with many projects with the United States Department of Commerce, including our current work effort with the Census Bureau Data Access and Dissemination Systems (DADS) and the Decennial Response Integration System (DRIS). I am here today to talk about IBM's role in supporting the U.S. Census Bureau for the 2010 U.S. Census, with a focus on some of the concerns identified in the GAO report of October 2007 (Report GAO-08-79).

History of the Census and IBM

IBM has a long history of working with the Census Bureau. The first automated census of 1890 was the inspiration for the birth of the Hollerith card, the foundation of modern

computing which remained in use through the 1970's. Herman Hollerith's company was one of the founding companies of the IBM Corporation.

In more recent times, IBM supported the 2000 U.S. Census as the prime contractor for the first Data Access and Dissemination System (DADS) contract, providing both data tabulation and Internet data dissemination.

IBM's Role and Responsibility

Currently, IBM is supporting the Census Bureau as part of two major contracts. In 2005, IBM was proud to be part of the winning Lockheed Martin team on the 2010 Decennial Response and Integration System (DRIS). Our role on that contract is to provide the systems supporting both the Telephony and Internet data collection channels for the 2010 Census. In September of this year, we were awarded the DADS II contract, and will again be providing data tabulation and Internet data dissemination services for the 2010 Census and other Census Bureau surveys. Our work in each of these contracts is described further below.

1. Telephony and Internet data collection channels for the 2010 Census

To further clarify IBM's role within the Census Bureau's activities, let me start with describing our role on the DRIS contract. The DRIS contract initially included data collection from the public via three channels: paper forms, telephone, and Internet. IBM's role on the DRIS team is to provide the systems and technology to support the last

two channels: telephone and Internet. Although the Internet channel was removed from the contract, if it is returned, we will be ready to provide a secure, user-friendly, and highly accurate method of collecting data from the public over the Internet, as we have done in recent Censuses in Canada and Australia.

The telephone channel is currently intended to provide a number of inbound and outbound calling services. Inbound services include the limited collection of new responses, support for follow-up on responses already received via telephone or other channels, responding to requests from the public for replacement forms and foreign language forms and guides, and answering questions from the public about the Census and the specific survey questions. Outbound services include additional follow-up on responses already received. The common enabling technology for the telephone channel is a centralized service composed of an Interactive Voice Response (IVR) with voice recognition software, an Agent Desktop application, and an automated dialer which maximizes efficiency in call processing for both inbound and outbound operations.

We are actively engaged in planning, testing, and control activities as we design and develop these capabilities. The overall system solution was architected and designed as part of the proposal we submitted to the Census Bureau in 2005, and it included our baseline cost estimates. As we prepare to begin each Phase of the program, we work with the Census Bureau in Integrated Project Teams (IPTs) to understand and refine the capabilities to be developed within that phase, and then develop detailed resource estimates showing the hardware, software, and labor skills required over time for each

phase of the life cycle. The development is accomplished using a set of iterated builds, each one incorporating more capability than the last, until the functions planned for the phase are completed. This iterated approach mitigates our risk, since we always have a fully-functional iteration to fall back on. As each component is completed, we incorporate a series of tests into the development of each component of the system, including unit testing, string testing, integration testing, and system testing. Once each component is fully tested, it is released to the next environment for further integrated testing with other components. We monitor and control our progress and spending against schedule and cost baselines, reviewing our progress each month using earned value techniques. Since the program was initiated in 2005, our work has been completely on schedule and slightly under budget, and we are currently forecasting no change from this status for the life of the program.

2. Data tabulation and Internet data dissemination services for the 2010 Census and other Census Bureau surveys.

Moving on to the DADS and DADS II contracts, IBM is responsible for providing the data tabulation and Internet data dissemination services for the 2010 Census and other Census Bureau surveys. For tabulation, IBM will be given the individual household and person records as collected through the DRIS and FDCA contracts and pre-processed, cleansed, and sanitized by the Census Bureau, and produce a large volume of reports. These reports will provide summarized totals of the number of people and number of households in numerous geographic areas across the U.S. including states, cities, counties, zip code tabulation areas, census tracts, census blocks and block groups, voting

districts, school districts, and thousands of other geographical divisions of the country.

These reports also show demographic data about these regions, including short form data such as age, race, ethnicity, family relationships, and other characteristics of the population. The tabulation solution we are proposing is based on the system architecture and design that we successfully used to tabulate the short and long-form Census in 2000.

Comment [I1]: From Hispanic to ethnicity

Comment [I2]:

For Internet dissemination, IBM will develop a system to replace the current American FactFinder system (www.factfinder.census.gov). This system offers free public access to tabulated data not only from the decennial Census, but also the results of several other major Census surveys, including the American Community Survey, the Economic Census, many annual Economic surveys, and the Population Estimates program.

Proposed new capabilities will offer users better searching and navigation capabilities, more flexible ways to analyze and pivot the information, and additional ways to visualize the data using charts, graphs, and maps.

The IBM contract also includes an option for a third system, a limited access ad hoc query system that offers authorized users the opportunity to directly query Census records and produce summarized reports.

Our planning, testing, and control activities for the DADS and DADS II contracts follow a similar process to that described for DRIS. The overall system solution for DADS II was designed as part of the proposal that we submitted in 2007. For each of the upcoming option years of the contract, we will work with the DADS PMO to identify the

specific capabilities and functions to be developed and deployed during the year, and provide detailed resource estimates. These annual updates will fit within the overall structure of our proposal and the contract. This year, we are beginning the design of both the tabulation and the dissemination systems to be used in support of the 2010 Census. The majority of the development will take place in 2008, and 2009, with 2010 primarily focused on data conversion, testing, and transition. The DADS systems will also be built using a set of iterations, three iterations for the tabulation system, and four for the dissemination system. Unit and string testing will be done on each module and component within an iteration, and the entire iteration will be subject to independent system and integration testing when complete. Each subsequent iteration will include all the capabilities in the previous iterations; those capabilities will be regression tested with the new iteration. We monitor and control our progress and spending against schedule and cost baselines, reviewing our progress each month using earned value techniques. We have never gone over our authorized funding on the DADS contract, and in several years, have spent less than the authorized amount.

GAO Report (GAO-08-79): Information Technology

The GAO report identified three major areas of concern associated with programs with which IBM is involved: (1) timing of the DADS II contract award and the impact of the delayed award on delivering functionality when required; (2) delays in delivering system functionality associated with the DRIS Telephone Questionnaire Assistance that will not be tested during the 2008 Census Test; (3) risk management. We would like to comment briefly on each of these areas.

(1) Timing of the DADS II contract award and the impact of the delayed award on delivering functionality when required. With respect to the DADS II contract, although we would have preferred that contract to have been awarded earlier, we do not believe the delay is a significant risk to the timely tabulation of Census 2010 data. We should point out that the original DADS contract was awarded in April 2007, only a few months earlier in the decade than the new DADS II contract. At that time, there were no existing tabulation or dissemination systems, so the risk was arguably higher than it is today. In addition, the proposed replacement tabulation system is built on the same technology and architecture as the original tabulation system, so the upgrades required to make it ready for the 2010 Census are not as significant as was required to build the system in time for the 2000 Census. Using the original system to support the 2008 Dress Rehearsal, although not ideal, is a completely workable and low-risk approach to meeting current schedule constraints.

With respect to data dissemination, the inclusion of this system for the 2008 Dress Rehearsal was never in the plan. Our current data dissemination system development schedule is built around a launch of the new system in early 2011, and we believe this schedule will give us sufficient time to achieve our objectives. The proposed replacement dissemination system expands the use of Commercial Off the Shelf (COTS) software, allowing more functionality for users of the system with less customized software development by our team needed. We also have several risk mitigation strategies identified, including lessening the capabilities incorporated in each system iteration. At worst case, we could disseminate some of the initial 2010 data using the

current American FactFinder application, and roll out the new system a bit later. We do not expect this to be required, but we mention it to emphasize that under no circumstances will the Census Bureau be left without the ability to disseminate the 2010 results to the public via the Internet.

(2) Delays in delivering system functionality associated with the DRIS Telephone Questionnaire Assistance that will not be tested during the 2008 Census Test. The GAO report mentioned that the Telephone Questionnaire Assistance capability (inbound functions) will not be developed in time to support the 2008 Census Test. We do agree that the delays in both funding and in contract awards have delayed the implementation of functionality in time for the 2008 Dress Rehearsal, which will mean that this test cannot be comprehensive. Therefore, we would support additional, possibly end-to-end system testing in 2009, as currently planned. This 2009 Test is intended to test most of the functionality not developed during Phase I. For the Telephony Channel, the 2009 Test will include TQA multi-skill routing, Interactive Voice Response (IVR), the Language Guide and Form Fulfillment, and Short-Form Data Capture – all the capabilities that were not included in the 2008 test. We anticipate that this end-to-end test will achieve the Census Bureau’s objectives for full testing prior to the 2010 Census.

(3) Risk management. The GAO report cited several concerns with respect to the Census Bureau’s risk management processes. In our opinion, the Census Bureau has one of the most integrated and effective risk management processes that we have seen in the federal government. Their overall approach to system testing, including the use of field tests of

both systems and operations, several times prior to the actual execution of the Census, could be taken as a model by other organizations with high risk operational activities. In addition, their commitment to developing a complete Census architecture including all the Census Bureau and contractor-built systems will and has already assisted the Census Bureau in identifying possible issues related to data exchanges between and among the various systems that make up the entire solution. Finally, our working practice with the Census Bureau includes regularly scheduled reviews both of the risks that we identify and our proposed mitigation strategies as well as a discussion of risks identified by the Census Bureau themselves. From our perspective, the Census Bureau takes risk management very seriously.

When looking at each of the specific major programs, the GAO report found that the DRIS program has fully implemented its risk management practices, while citing some risk management processes as not being fully implemented within the DADS program. Of the nine specific risk management practices cited by GAO, the DADS program was found to have fully implemented five of the practices, partially implemented three of the practices, and not implemented one of the practices. Each of the four areas not found to be fully implemented are described below:

(1) Identify and involve the relevant stakeholders of the risk management process as planned (partially implemented). No specific information about the DADS program was provided by GAO, but we are involved in presenting risks each month to DADS program stakeholders from across the Census Bureau as part of our regular Program Management Review (PMR). Senior executives and representatives from the various survey programs

who use DADS services are invited and attend these meetings. The attendees offer commentary, suggestions, and recommendations if the proposed risk mitigation activities do not appear sufficient or appropriate for the identified risks.

(2) *Identify and document the risks* (partially implemented). The GAO report states that the DADS II projects did not provide evidence that specific system interface risks are being adequately identified to ensure that risk handling activities will be invoked should the systems fail during 2010 Census. For example, GAO notes that although the DADS II system will not be available for the Dress Rehearsal, the DADS project team did not identify any significant interface risks associated with this system. What we believe GAO may not realize is that, in comparison with the rest of the Decennial Census interfaces, the requirements for interfacing with the DADS II system are comparatively modest. Only two interfaces are required: one from the Census Bureau's Response Processing System, which is responsible for cleansing and sanitizing the response data, and the other from the MAF/TIGER system, identifying the mapping between census blocks and the other geographical units for which data is tabulated, such as states, counties, zip codes, census tracts, and other areas. These are essentially one-time data transfers with some test deliveries prior to the final data handoff. As the incumbent contractor, we have significant experience in working with the Census Bureau on these handoffs. Our current understanding is that these interfaces will be very similar to those that were implemented in 2000. Although getting the data on time is clearly on the critical path to delivering the tabulated results to Congress and the public on schedule, we believe that the risk in these interfaces is low in comparison to other interfaces such as the near-real-time data exchanges required between the FDCA and DRIS systems, for

example. In general, IBM works very closely with the DADS PMO to identify and document risks. Both IBM and the DADS PMO maintain a register of risks. On a monthly basis, we review the current risks identified by each team, and discuss the risk mitigation actions and contingency plans for the most highly-rated risks. We also regularly identify risks during our weekly joint Project Management Meetings, and as stated earlier, present these risks at our stakeholder Program Management Reviews.

(3) Develop a risk mitigation plan for the most important risks to the project, as defined by the risk mgmt strategy (not implemented). The GAO report concludes that the mitigation plans for DADS II were incomplete, with no associated future milestones and no evidence of continual progress in working towards mitigating a risk. In several instances, DADS II mitigation plans were listed as “To Be Determined.” However, not only do all of our own risk mitigation plans include specific actions, but to the best of our understanding, all the risks identified by the DADS PMO have fully defined risk mitigation activities as well.

(4) Monitor the status of each risk periodically (partially implemented). The GAO report concluded that the DADS II project teams did not identify system interface risks nor prepare adequate mitigation plans to ensure that systems will operate as intended. In addition, GAO believes that the DADS II risk reviews showed no evidence of developing riskhandling action items, tracking any existing open risk-handling action items, or regularly discussing mitigation steps with other risk review team members. Further, they believe that because they did not develop complete mitigation plans, the DADS II project teams cannot ensure that for a given risk, techniques and methods will be invoked to avoid, reduce, and control the probability of occurrence. However, as stated earlier, we

believe that the interface risks for the DADS II system are very low, and that the risk mitigation actions are in place for all the identified risks.

Conclusion

In closing, we would like to express both our commitment to seeing the Census Bureau through a successful 2010 Census, and our appreciation for the Census Bureau's work to date. In our long history of working with the Census Bureau, we have been thoroughly impressed by the knowledge, professionalism, and dedication of its employees and leaders, as well as by their commitment to continuous improvement and technology innovation. We would urge the members of the Committee to support their colleagues in passing the full Commerce Department appropriations bill for FY08 as quickly as possible, allowing us and the Census Bureau to move forward expeditiously both in executing the 2008 Dress Rehearsal and beginning development of the complete system to be used for the 2010 Census.

Thank you for the opportunity to testify.