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E-GOVERNMENT – WHAT IT MEANS FOR OFFICIAL STATISTICS

Invited paper submitted by National Agricultural Statistics Service, United States of America**

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* Due to the late submission of this paper, it could neither be translated nor reproduced.

** Prepared by Ms Martha Farra, National Agricultural Statistics Service, United States of America.

Introduction

1. With the global public becoming accustomed to electronic enabled conveniences and services in the private sector such as banking, shopping, and gathering information on-line, they naturally expect and even demand, the same service, accessibility, and efficiency from government. This has resulted in the move toward E-Government in countries around the world.

2. This paper concentrates on e-Government strategies at the National Agricultural Statistics Service (NASS), which is one of 29 agencies within the United States Department of Agriculture (USDA). NASS is responsible for the collection and processing of agricultural data and the production and dissemination of official agricultural statistics for the United States Government. To understand what e-government means to NASS, we first examine NASS's mission and structure. Next, we describe the e-Government mandates of the Executive and Legislative Branches of the U.S. Government and the guidelines that the USDA has adopted across agencies to implement these mandates. The paper focuses on opportunities and challenges we faced as we e-transformed the way we do business in response to these mandates and departmental guidelines.

NASS

3. To understand the impact e-Government will have for NASS, we need to summarize NASS mission and structure and its functions.

Mission and Structure

4. The National Agricultural Statistics Service (NASS) is the primary collector of U.S. agriculture data and publishes official statistics as authorized by Congress of the United States. NASS serves the basic agricultural and rural data needs of the country with accurate, timely, and unbiased statistical information and services to the public. NASS uses its 46 field offices to collect and compile data for the headquarters office in Washington, D.C. as well as all 50 states and Puerto Rico. Farmers, ranchers, and agribusinesses provide data for NASS reports. Hundreds of nationwide surveys are conducted annually, quarterly or monthly covering crops, livestock, economics, and other agricultural activities. Through cooperative funding arrangements with State Departments of Agriculture, NASS also collects detailed data on commodities important to local economies not covered by federal funds. NASS relies on the voluntary cooperation of respondents to report data except for the Census of Agriculture that is mandated by federal law. Individually reported data are confidential and protected from disclosure by federal law.

5. When it serves the agricultural sector, NASS also provides consulting, training, and statistical assistance to other organizations in the design, sampling, and administration of surveys. NASS also conducts reimbursable surveys for federal and state governmental bodies and universities. Through the Agency's International Programs Office, survey expertise and assistance is provided to foreign countries as well.

Functions

6. NASS core business functions include data collection, processing and analysis to support the dissemination of results from National and State surveys and the US Census of Agriculture. For each national survey or census, NASS develops specifications that clearly define all aspects of the survey process including survey objectives and products, administrative needs, questionnaire content, sample design, editing, analysis, and reporting.

7. For any given survey data may be collected using multiple modes. Information may be gathered through self-administered methods or via enumerators. Traditionally, self-administered surveys are paper questionnaires mailed to respondents. Enumerated surveys are conducted through a face-to-face interview or a telephone interview using either Computer Assisted Telephone Interviewing (CATI) software or paper questionnaires.

8. NASS uses many applications in processing a survey and typically has used SAS in data analysis throughout the process. With the advent of an IBM RedBrick Historical Data Warehouse in 1995, the staff saw value in using historical data for data analysis throughout the process and began realizing that integrating data applications with NASS databases and processing system was the "right thing to do."

9. Annually NASS produces more than 425 reports based on indicators derived from agricultural knowledge and from survey, census, and/or administrative data. These reports are distributed through hard copy, email, or via the web.

The United States View of E-Government from the Top

10. E-Government focuses on the mission of Government and transforming the way the Government accomplishes this mission. In the U.S. there has been a top down demand for e-Government to which NASS is responding.

Vision

11. E-Government takes government activities and uses electronic tools to do them. The President's Management Agenda for 2002 identifies "Expanding Electronic Government (or E-Government)" as one of five goals the George W. Bush administration will manage across the Federal Government. E-government will have these characteristics. It will be *customer centric* driven by customer's needs. It will be *enterprise focused* promoting the sharing of information at all levels of Government and consolidating redundant systems. Finally it will be p*rocess-efficient* creating efficient and integrated systems, *while leveraging in-house technology and incorporating new techniques.*

Impetus for change and accountability

12. While e-Government is clearly the "right thing to do", the Legislative and Executive Branches have built in incentives to ensure that individual agencies take e-Government seriously. The Government Paperwork Elimination Act (GPEA) mandates that Federal

agencies must give public and private entities the option of transacting business with these agencies electronically by October 2003 when practicable.

13. The Office of Management and Budget (OMB) has oversight authority and promises to favorably fund projects that have strong e-Government strategies and to withhold funds from projects that do not. The Department is to submit a 5 year Strategic Plan with agencies submitting 5 year Tactical Plans. Quarterly and annual "integrated" progress reports are required demonstrating that agency budget initiatives, tactical e-Government planning, and GPEA plans and activities are coordinated and are supportive of each other. Finally, the President's Management Council produces a scorecard that is advertised through the media showing each Department's progress toward e-Government.

14. Setting an example for the individual Departments and Federal agencies to follow, OMB developed a their own strategy and initiatives. In October 2002, OMB released the e-Government Strategy for the United States as a whole. The strategy included 24 Presidential Initiatives that focus on the Governments relationship and interaction with citizens, businesses, and government. Besides improving government's quality of service, these programs are expected "to generate several billion dollars in savings by reducing operating inefficiencies, redundant spending and excessive paperwork" across the Federal Government.

USDA e-Government Leadership and Strategy

15. The Office of the Chief Information Officer (OCIO) of USDA was given the responsibility to create the USDA portion of the e-Government program and to facilitate a structured Department wide strategic planning process. The governance structure included an e-Government Executive Manager within OCIO and an Executive Council and a Working Group with representatives from each of the 29 USDA agencies and e-government steering committees within each agency. Collectively, these individuals sponsor, champion, and lead the e-Government effort throughout USDA--they are the communicators who guide the process of e-transforming USDA, her agencies, and her employees. They interact, inform, and work with Administrators and other agency leaders to assist in making e-Government a reality.

16. With the need to move quickly and skillfully, USDA hired Accenture, a consulting firm, to facilitate the process of e-transforming USDA. Accenture helped guide the e-Government team in *establishing these common guidelines to direct change:*

1) *Think big, start small, and scale fast.* Generate "bold new ideas" while envisioning the future of the organization, then take "small steps" with "quick wins" to get measurable results.
2) *Build on current successes.* Leverage existing capabilities and efforts as a base on which the entire USDA enterprise can expand. Build on current "best practices" of agencies.
3) *Innovate and transform.* e-Government is not just about technology, but about embracing new models of conducting business, addressing root causes instead

of symptoms, and building solutions into new or significantly expanded programs from the outset.

4) *Collaborate, partner.* Agencies must work together to drive change. As multiple agencies service the same customer, collaboration is critical to providing a unified customer experience. This means striking a balance between agency flexibility and corporate responsibility, agency independence and corporate synergies.

5) *Augment, instead of replacing.* Channels and services need to be added to improve interactions with the public while maintaining traditional channels ensuring access for all stakeholders. Being first and foremost about people and for people, the importance of human connections cannot be diminished. Technology should be employed to make human interactions more valuable.

6) *Educate, market, and advocate*. USDA must educate customers, partners and employees on the value of e-Government. Employees must see the value of transforming government.

17. Using this framework, the USDA e-Government work force made notable progress in establishing a 5-year USDA Strategic Plan that serves as a "working" document. The following tasks were completed as a part of the plan:

1) *Mission and vision statements established.* The USDA e-Government mission is "to transform and enhance delivery of USDA programs, services, and information" with the vision of "electronically, any place, any time". The goals and objectives established reflect USDA's commitment to provide customer service: government to citizens, government to partners and businesses, and Government to employees.

2) *USDA e-Government initiatives identified that deliver significant productivity and performance gains across USDA*. These initiatives are innovative - delivering programs and services in new and better ways, comprehensive – satisfying all customers' USDA related needs, and integrated – working across USDA agencies to provide front and back- end solutions.

3) *Initiatives designated as "Smart Choices" to begin immediately development*. To boost the acceptance of e-Government, it is important to have some "quick win initiatives." Projects selected as "smart choices" had high impact, across-agency value, and could demonstrate progress in a short period of time. The initiatives chosen often-included "best practices" of an agency that could be shared or expanded across agencies.

4) *Business Cases for each Smart Choice initiative*. Agencies worked together to develop a standard business plans for each initiative. The initiative plan included "As Is" and "To Be" situations, with a strategy to close the gap between the two. This exercise required negotiation skills and flexibility and agencies had to learn to focus on the good of the "enterprise".

18. Once the USDA Strategic plan was developed, each of the agencies began developing 5-year agency tactical plans. This plan outlined agency strategy including supporting efforts towards the USDA's 24 initiatives and numeration individual agency e-Government initiatives.

NASS Response to e-Government

19. The responsibility for developing a Tactical Plan for NASS was given to NASS's e-Government Steering Committee. The committee recognized that transitioning from an agency-controlled environment to a shared "enterprise" environment would be difficult. For example, NASS feels strongly about initiatives such as e-authentication and data management and wants to participate in their development. Instead of controlling the specifications for a system, NASS must now negotiate with other USDA stakeholders to arrive at a suitable "enterprise" solution. The enterprise system will hopefully meet our needs, but will not be tailor made for us. Current if there is a new enterprise solution, the existing NASS solution, no matter how beloved, will cease to be funded in favor of shared spending for the enterprise solution. To get what NASS wants as an agency we can aggressively work toward presenting our solution as a "best practice " system for other agencies to adopt in an enterprise fashion, or take leadership in developing a plan for the smart choice initiative. The USDA e-Government team rather than NASS will also control over the timeline for the development of the enterprise system. Not being able to control the development timeline of critical systems is sure to frustrate mangers. For example, as NASS moves forward with web data collection, it is counting on using the USDA solution for e-authentication. Finally, the enterprise solutions will be modules that NASS must interface with its infrastructure.

20. NASS e-Government Steering Committee named several USDA enterprise initiatives NASS should be actively involved in developing each business case. For the Survey Capability and Data Management initiatives they recommend that NASS take a leadership role. By leading the two initiatives, NASS would support USDA and the "enterprise approach" in areas where we excel. Additionally, NASS has a lot to gain controlling the direction of these initiatives. There are also opportunities to address such as data sharing among agencies. There are barriers to be resolved such as those relating to policy (definition of a farm), law (confidentiality and privacy laws) or to data management (frame construction). "Survey Capability" is an "enterprise" initiative, because many USDA agencies named it as "a need". NASS as USDA's survey agency needs to focus on enterprise needs and determine what role NASS should take to address these needs. For example, NASS could

- Oversee clearance of surveys for statistical accountability and integrity, or
- If another agency is outsourcing a survey, NASS could review and give advice on the agency's request for proposals and the resulting proposals, or
- Take on more USDA survey work with the potential of having other agencies financially share in supporting NASS's survey infrastructure.

21. The committee worked with the Administrator to verbalize his sponsorship and vision of an e-Government NASS within the Tactical Plan. The Committee members conducted interviews and visioning sessions from all areas of NASS and amalgamated their findings to arrive at 22 cross cutting "opportunities" for NASS. The committee spoke to the need for strong e-Government leadership initiatives and to the eventual need to "reorganize" NASS.

22. NASS's Administrator created the position of Director of e-Government and attached the position directly to his office. This demonstrated NASS's commitment to a future of e-Government that crosses all functional lines of NASS and needs to be in the forefront in

policy and budget decisions. The e-Government Director's role is to provide leadership in planning, development, integration, and implementation of NASS e-Government "opportunities" and activities and of the USDA's e-Government initiatives of interest to NASS. NASS hired a "strategic planner," an expert in data management with extensive IT knowledge and with a record of "making things happen." His contract knowledge will be helpful in evaluating companies for outsourcing.

23. To begin prioritizing, developing, and implementing e-Government opportunities and strategies, the make-up of the E-Government Steering Committee was changed to include mid-level and project managers. This ensured involvement or at least awareness from all functional areas of NASS and included persons who could manage resources and influence the "corporate thinking and acceptance" of e-government.

24. The Director of the E-Government Program formed a small core "out of the box" thinking proactive group to weekly engage in e-Government strategic planning: to discuss strategy, to address hard issues and find solutions, to stay informed, and to keep the process of e-transforming NASS moving.

Phase 1 Implementation – Electronic Data Reporting

25. With minimal staff and financial resources, NASS first focused on a specific area that could produce a "win" or positive impact on external customers and one that would support NASS in meeting GPEA deadlines. While NASS reports are currently electronically available to the public, electronic data reporting (EDR) is virtually nonexistent at NASS. With over 400 surveys resulting in almost 1100 data collections a year, NASS committed its resources to advancing Electronic Data Reporting. NASS's Administrator set an ambitious target of 51% of NASS data collections to be available on-line by October 2003 with all surveys appropriate for EDR on-line by 2007.

26. NASS managers decided that initial EDR efforts would focus on "Web" data collections as Web collections have a more controlled secure data collection/ data transmission environment than other methods as e-mail. . Additionally, they decided to focus on creating self-administered instruments targeting "external" customers, as opposed to instruments for internal information exchange or for data capture.

27. With NASS existence depending on the willing cooperation of farmers and agribusinesses to respond to NASS surveys, NASS is eager to offer respondents with Internet access the option of reporting via the Web. NASS is, however, equally concerned that the environment is secure and the experience is user-friendly and positive – not wanting to discourage willing respondents. Additionally, with the need to offer respondents optional modes of responding and with the digital divide, NASS must offer Web reporting "in addition" to traditional modes of collection -- not in place of them.

28. Specifications for a Questionnaire Repository System were developed and Decision Systems Technology Incorporated (DSTI), a contracted private firm, was selected to build the system**.** The Question Repository System (QRS) is a client server application that stores survey questions. Questionnaire designers will access the QRS and build survey questions in

a customized Microsoft Word environment. The construction process allows for virtually unlimited control over formatting features, in addition to embedding metadata such as variable names to identify the information being collected. Once the questions are in the QRS, they may be retrieved and used to produce properly formatted paper and Web questionnaires.

29. Another change envisioned for the reporting system is a standardized approach to questionnaire development. Many questions are common across NASS surveys but question wording may differ from survey to survey, or from state to state. In the future, with all questionnaires regardless of mode constructed from a common set of stored questions, NASS wants to minimize change and encourage standardization.

30. The next step is to complete the EDR system, to integrate it with other NASS processing systems, and to use it to produce Web and paper instruments for NASS surveys.

Phase 2 Implementation – Applications and Data Architecture

31. Having responded to the mandates of GPEA through an EDR solution, NASS can concentrate on developing a new e-Government-centric applications and data architecture. As a result of applications being built overtime on an "as needed" basis and retro-fitted into the existing NASS processing systems, the current applications and data environment are not scaleable, not repeatable, and not consistent.

32. There are four layers to NASS's Enterprise Architecture: the *Business Layer* that defines our mission and the products we develop and deliver; the *Application layer* that includes all applications used in delivering NASS products while following business rules; the *Data layer* that includes data that meet NASS data standards and data rules to guarantee developed products have value and meaning and are input into our applications; and the *Infrastructure layer* that includes hardware and network requirements necessary for an application to execute. While each layer is important, the application and data layers are where data comes together, applications interface with each other, and where change must take place to move away from the redundancy across application functionality and data sets.

33. A high-level "conceptual vision" of a new Application and Data Architecture is currently being developed along with a pilot or working example that will demonstrate the different components of this described architecture. These ideas will be presented to NASS staff as a start for discussions.

34. NASS goals include sharing data more effectively, standardizing data elements and data management procedures, and simplifying applications, development and maintenance activities. With these goals in mind, the initial Application and Data Architecture may be describes as including:

- "Web enabled" browser based applications having remote access and simplified support needs,
- Server-based applications that require minimal development time and simplified maintenance,

- Data managed externally from applications allowing application developers to focus on functionality rather than data management, and.
- Applications with no redundancy in functionality.

35. The major data sets in question include: *business rules* that govern our data processing activities; *specifications metadata* that define who, what, when, where, and how a survey is to be administered; *application processing parameter metadata* that control the behavior of application programs; *survey response data* that is collected from respondents; and *edited/generated data*. All of this data will be kept in a common metadata repository. The data is accessible to all NASS applications to perform their functions and it is considered a single version of the truth.

36. Developing the Applications and Data Architecture presents a unique opportunity for NASS e-Government leaders to demonstrate what an e-Government process might look like, to invoke staff involvement and ownership of this new e-NASS environment, and to produce enterprise architecture components that will be the backbone for the development of the other e-Government initiatives.

Conclusion

37. The e-transformation of NASS will continue to be extremely challenging. Managers who are primarily concerned with day-to-day work and protecting their resources, ask "WHO is going to e-transform NASS?" Many employees are uncomfortable with change and fearful of their jobs with e-Government promising to "change the way we do business" while promoting "new skills," "outsourcing," and "process efficient" solutions. Even e-Government promoters look at the enormous scope of the e-Government project seeing a huge effort with little resources, with a conservative traditional organization that does not want change, and with e-Government being just one of many competing priorities of upper level managers. While e-Government promises to improve our products for a statistical organization, it is up to NASS to provide the appropriate safeguards and quality control to ensure that change in any form does not adversely effect the quality of our data and the public perception of confidentiality.

38. While challenging, E-Government offers NASS tremendous benefits for the future:

39. *We have the opportunity to streamline and integrate our systems making them more efficient and possibly easier to use.* We can incorporate the process of centralizing and simplifying data management which supports the ability to track data throughout our statistical processes with features of repeatability, scalability, and consistency. With more integration of applications we can promote consistency and standardization in our policies, processes and data identification. The QRS, for example, promotes consistency in questions and questionnaires across surveys and across states with standardized variable names associated with each response. NASS views this new environment as conducive to data quality and integrity.

40. *We have the opportunity to provide better customer service in collecting data and in product delivery.* NASS must use innovative data collection methods such as Web-based surveys to reduce respondent burden and improve voluntary cooperation. In the future, NASS wants to produce "customized" questionnaires for respondents from historical NASS data or from data obtained from another agency under a "shared" enterprise agreement. Additionally, NASS wants to provide citizen with a "report building" option to gather desired NASS information. Citizens should be able to receive NASS information and products through USDA Gov, USDA's web site, without having to know the source of the data.

41. Looking further in the future, we will likely see citizens from many countries wanting and even expecting to have easy access to global agricultural information.

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