



# Development and Implementation of a Web-Based Biodata Inventory for Food Inspectors

*Working for America*

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*“... I hope you’ll never take the honor of public service for granted. Some of us will serve in Government for a season; others will spend an entire career here. But all of us should dedicate ourselves to great goals: We are here not to mark time, but to make progress, to achieve results, and to leave a record of excellence.”*

President George W. Bush





# Overview

## Office of Personnel Management's (OPM's) Assessment and Training Assistance Services (ATAS)

- We deliver high quality employment and organizational assessment services to Federal and local governments
- We provide cutting-edge human resources management services by conducting basic and applied research with a specific focus on individual, organizational, and outcome assessment



# Overview

## Food Inspectors

- Employed by the Department of Agriculture's Food Safety and Inspection Service (FSIS)
- Work in privately owned processing plants
- Located mainly in rural areas
- Inspect meat, poultry and egg products
- Inspect live and slaughtered animals for disease and defects
- Ensure safety of food products for consumption
- Reduce incidences of foodborne illnesses



# Overview

## Purpose behind the project

- Develop an automated application process

## Concerns of FSIS

- Cost to administer paper and pencil tests
  - Rurally located applicants and jobs at a distance from testing sites
  - Desire to assess non-cognitive competencies, for example conscientiousness, interpersonal skills, self-management, flexibility
  - Need for an automated process in an unproctored setting
- Solution by OPM
    - Recommended development of an online biographical data (biodata) inventory



# Overview

The Federal Government is moving to online assessment

- Many Federal agencies are working to completely automate the hiring process, e.g., DHS, HR Lines of Business
- There is extensive interest in online assessment

Many vendors provide online hiring questionnaires and assessments





# Step 1: Identify assessment method

## Merit Systems Protection Board Report (2004)

*“The quality of selections depend on **content** – the criteria and methods used to distinguish among applicants.”*

- Some assessment types ruled out for FSIS due to:
  - Security issues for tests
    - Cognitive ability
    - Job knowledge
  - Suitability for an automated system
    - Structured interview
    - Assessment center
    - Work sample



# Step 1: Identify assessment method

Biodata identified as a good candidate

- Benefits of using a biodata inventory
  - Past success of biodata measures (Schmidt & Hunter, 1998)
  - No “perception of” right or wrong answer
  - Lower adverse impact than cognitive measures
  
- Practical reasons for using biodata
  - Minimal burden on applicant
  - Automated scoring of responses
  - Online administration of test possible
  - No need for proctoring





## Step 2: Item development

Developed based on job analysis

Collected experiences contributing to successful performance

- Based on “Life History”
- Used a panel of Subject Matter Experts
- Can be done online

Developed items

- Some items selected from existing pools
- Some items developed/written for the specific job



# Step 3: Validation and Scoring

## Concurrent validity study performed

- OPM administered preliminary biodata inventory to a sample of incumbents
- Supervisors completed a research-based performance evaluation

## Data collected

- Data was collected via paper and pencil
- OPM and FSIS wanted to collect data online, but no computer access for incumbents at the plants

## Data analyzed

- Vertical 10% scoring key created
- Final inventory cross-validated
- Cut score and adverse impact analyses conducted



# Step 4: Implementation

## Final biodata inventory hosted on USA Staffing

- Uses Federal web-based application system
  - Available to any applicant with Internet access
  - Automated scoring and ranking of applicants
- Linked to vacancy announcements on USAJobs and FSIS websites

## Items loaded onto website, scoring key implemented

## System tested

- Ensured that items and response options appeared correctly
- Ensured that scoring key was correctly implemented



# Step 4: Implementation

Applying for a Food Inspector position under the old system

1. View vacancy announcement on USAJobs
2. Apply for position by mailing a hard copy of a resume and schedule appointment for testing
3. Travel to testing site and take test
4. Place on register
5. Make hiring decisions
6. Conduct background investigation, etc.



# Step 4: Implementation

Applying for a Food Inspector position under the new system

1. View vacancy announcement on USAJobs
2. Apply for position and submit resume (electronically or by mail)
3. Click on link to biodata assessment
4. Place on register
5. Make hiring decisions
6. Conduct background investigation, etc.



# Step 4: Implementation

**USAJOBS**<sup>®</sup> "WORKING FOR AMERICA" USAJOBS is the official job site of the United States Federal Government. It's your one-stop source for Federal jobs and employment information.

FAQS | PRIVACY POLICY | HELP | SITE MAP

HOME | SEARCH JOBS | MY USAJOBS | FORMS | EMPLOYER SERVICES

**Food Safety And Inspection Service**

Department: **Department Of Agriculture**  
Agency: **Food Safety and Inspection Service**  
Job Announcement Number:  
**GS-1863-5/7**

**Vacancy Announcement** [← Back to Search Results](#)

USDA FOOD SAFETY & INSPECTION SERVICE  
USDA FSIS HUMAN RESOURCES FIELD OFFICE

**VACANCY ANNOUNCEMENT**

**VACANCY IDENTIFICATION NUMBER:** UM188899

**OPENING DATE:** Mar 31, 2004

**CLOSING DATE:** Indefinite





# Step 4: Implementation

A screenshot of a Microsoft Internet Explorer browser window. The title bar reads "USAJobs - Microsoft Internet Explorer". The address bar shows the URL: "http://jobsearch.usajobs.opm.gov/getjob.asp?JobID=21533830&CCD=my%2Eusajobs%2Eopm%2Egov&JSD=jobsearch%2Eus". The main content area displays the following text:

announcement.

**STEP ONE:**

Review the online vacancy announcement.

**STEP TWO:**

Complete and Submit the Occupational Questionnaire:

To submit your answers online, read the instructions shown below, and then you may start by clicking on the following link.

**[Online Questionnaire](#)**

We highly encourage you to complete the Occupational Questionnaire using the Online method since it is the most efficient way for us to process your responses. If you are unable to submit your responses Online, refer to the alternatives described under "Alternative Methods for Completing Occupational Questionnaire" at the end of this announcement.

**Instructions for answering the questions in the Occupational Questionnaire:**

Please use the following step-by-step instructions as a guide to filling out the required questionnaire. We encourage you to print the vacancy announcement and refer to it as you answer the questions since questions are rotated on a

The browser's status bar at the bottom shows "Done" and "Internet".



# Step 4: Implementation

The screenshot shows a Microsoft Internet Explorer browser window displaying the "USA Staffing Online Application" page. The address bar shows the URL: <https://www.hr-services.org/USAWeb/USAWeb.aspx>. The page features a header with the title "USA Staffing Online Application" and the Office of Personnel Management logo. Below the header are navigation buttons: "Save", "Finish", "Log Out", "Previous", and "Next". A link for "View Privacy Statement" is also present. The main content area is titled "Occupational Questions" and indicates "Total Questions = 57". The text provides instructions on qualifying experience or education for the GS-5 level, stating that 1 year of full-time (part-time is prorated) experience or a 4-year degree is required. Two examples, A and B, are provided to illustrate the requirements.

**USA Staffing Online Application**

[View Privacy Statement](#)

Save Finish Log Out Previous Next

**Occupational Questions** Total Questions = 57

Qualifying experience or education for the GS-5 level is described in the examples below. If you do not have 1 year of full-time (part-time is prorated) experience or a 4 year degree, as described in the examples below, you do not qualify for this position (Please do not complete the questionnaire if you do not have qualifying experience for the GS-5 or GS-7 level or qualifying education for the GS-5 level). You must provide a detailed description of the experience or a copy of your transcripts with your application. A qualifications determination will be made based on the examples of work experience or transcripts you provide in your application.

A- I have a 4 year degree (or will complete degree requirements within 9 months) with 12 semester hours in the biological, physical or agricultural sciences or math and am providing a copy of my transcripts with my application.

B- I have experience in a slaughter, processing or manufacturing plant which prepares food, beverage or pharmaceuticals for consumption. My experience involves decision making regarding good versus bad product, as well as applying, interpreting and explaining product or processing standards. (Note: Technical competitive functions



# Step 4: Implementation

USA Web - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Favorites Media Print

Address <https://www.hr-services.org/USAWeb/USAWeb.aspx> Go

The following questions ask about your experiences, preferences, and capabilities. No special training or experience is required to answer these questions. Generally, the questions relate to your work and education related experiences while some questions ask about your experiences in working with and relating to others in a work setting. If you are not currently in a work group, please answer the questions based on experiences you may have had in previous jobs, or in school, social, athletic, or volunteer organizations. Please do not skip any questions. Also, your responses on some items may be verified at a later date.

**3. For me, deciding whether or not I have to inform my supervisor of work related issues is:**

A. Easy

B. Slightly Difficult

C. Difficult

D. Very Difficult

**4. Providing informal supervision to a number of different people is:**

A. Easy

B. Slightly Difficult

C. Difficult

D. Very Difficult

Done Internet





# Step 4: Implementation

The screenshot shows a Microsoft Internet Explorer browser window titled "USA Web - Microsoft Internet Explorer". The address bar displays "https://www.hr-services.org/USAWeb/USAWeb.aspx". The main content area contains two survey questions, each with five radio button options (A through E).

**9. I have had several jobs that required me to make mathematical calculations.**

- A. I do not agree with this statement at all.
- B. I agree with this statement to some extent.
- C. I agree with this statement quite a bit.
- D. I agree with this statement to a great extent.
- E. I totally agree with this statement.

**10. I often find that my decisions have an end result (good or bad) that I did not anticipate.**

- A. I do not agree with this statement at all.
- B. I agree with this statement to some extent.
- C. I agree with this statement quite a bit.
- D. I agree with this statement to a great extent.
- E. I totally agree with this statement.

At the bottom of the form, there are five buttons: "Save", "Finish", "Log Out", "Previous", and "Next". A tooltip for the "Next" button reads "Takes you to the next page or next step". The browser's status bar at the bottom shows "Done" and "Internet".



# Step 4: Implementation





# Step 4: Implementation

The screenshot shows a Microsoft Internet Explorer browser window titled "USA Web - Microsoft Internet Explorer". The address bar displays "https://www.hr-services.org/USAWeb/USAWeb.aspx". The main content area features a banner with the text "USA Staffing Online Application" and the Office of Personnel Management seal. Below the banner is a "View Privacy Statement" link. The main text reads: "Thank you. Your online application for UM188899 has been received. Please be sure to review the **How to Apply** information on the vacancy announcement for this position to see if additional application steps are required. Once you have submitted your complete application, you can usually expect to receive a Notice of Results in about 4 - 8 weeks. We are sorry, but we are unable to respond to requests to verify receipt of individual applications. If you have questions concerning this vacancy, please refer to the contact information listed in the job announcement." Below this is a "Privacy Notice" section: "Privacy Notice: If you are accessing this application from a computer that is used by others, to protect the privacy of your information, please exit the browser." The browser's status bar at the bottom shows "Done" and "Internet".

USA Staffing Online Application

[View Privacy Statement](#)

Thank you. Your online application for UM188899 has been received.

Please be sure to review the **How to Apply** information on the vacancy announcement for this position to see if additional application steps are required. Once you have submitted your complete application, you can usually expect to receive a Notice of Results in about 4 - 8 weeks. We are sorry, but we are unable to respond to requests to verify receipt of individual applications. If you have questions concerning this vacancy, please refer to the contact information listed in the job announcement.

**Privacy Notice: If you are accessing this application from a computer that is used by others, to protect the privacy of your information, please exit the browser.**





## Step 5: Impact of biodata assessment

Contributed to a 64% increase in the number of applicants and at a lower cost than a proctored test

Tested over 4,000 applicants in initial six month period

Increased quality of applicants

- More applicants meeting minimum qualifications
- More applicants with relevant experience



# Step 5: Impact of biodata assessment

Conducted an informal survey of HR staff

- Higher ratings (on 5-point scale) for applicants from new system vs. old system
  - Quality (new system: 4.1; old system: 3.1)
  - Availability (new system: 4.1; old system: 3.2)
  - Timeliness (new system : 4.4; old system: 3.9)



## Step 5: Impact of biodata assessment

FSIS can reach a larger applicant pool

FSIS can alter recruitment strategy

- Previously FSIS focused on general recruiting
- Online system has increased available applicant pool
- FSIS can now use targeted recruitment
  - Focus on locations with the greatest hiring needs

Applicant responses can be stored electronically, as opposed to physical storage of paper tests



# Step 4: Impact of biodata assessment

## Decreased applicant burden

- Do not have to schedule a testing appointment
- Do not have to travel any farther than their home computer or library

## Shortened application time

- Applicants can now be available for consideration within one to ten business days after submitting application
- Consistent with OPM's vision of a 45-day hiring model

## Showed less adverse impact



# Lessons learned

Know the limits of your testing system

- Maximum number of items
- Maximum number of response options

Know upfront, anticipate or keep in mind scoring system

- Can response option weights include decimals?
- Can response options receive positive or negative weights?
- Can scale scores be standardized?
- If not, may need to algebraically manipulate response option weights
  - Multiply by 100 to remove decimals or use rounding
  - Add a constant to make all weights positive
  - Adjust response option weights to yield standardized scores



# Lessons learned

## Keep hand scoring in mind

- Applicants may challenge automated scoring and ask for hand scoring
  - Is hand scoring easy to do?
  - Is hand scoring easy to follow?
  - Can hand scoring be explained to applicants, courts and your client?

## Identify and handle repeat testers

- Automated blocking within certain time periods





# Lessons learned

Identify and discard incomplete and bogus applications

- Some applicants may begin responding and then stop for various reasons
- Some non-applicants may respond to items out of curiosity or to test the system, etc.

Provide clear, step-by-step application instructions



# Perceived concerns about online testing

Concern: Applicants will not have computer access

- Department of Commerce survey showed demographic differences in computer access
  - Sharf (2000, 2005) notes possibility of “e-loaded” adverse impact

What we found: Instructions on FSIS website identify sources of free Internet access (for example, libraries)

- Ninety-five percent of 2000 in old system reapplied using the new system



# Perceived concerns about online testing

Concern: Applicants will call in asking for paper applications

What we found: Only a few (less than one percent) of the 4,000 initial applicants asked for a paper application

- The overall percentage of individuals requesting a paper application is decreasing



# Future Research at OPM

Compare distributions of scores and criterion-related validity from:

- Applicants
  - Web-based
  
- Incumbents
  - Paper-and-pencil
  - Concurrent validity study data



# Future Research at OPM

## Implement online assessments for other agencies

- Online biodata projects are underway for law enforcement and professional occupations
- Online situational judgment projects are underway for clerical and enforcement positions

## Implement other types of online assessments

- Cognitive ability (with verification)
- Situational judgment



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