

Lessons learned from Internet dissemination of confidential farm survey results: USDA's Agricultural Resource Management Survey

Mitchell J. Morehart

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Presentation Objectives

- Describe the Agricultural Resource Management Survey (ARMS)
- Initial System Development
- Peer Review and Prototype Validation
- System Performance
- Future Enhancements

What is the Agricultural Resource Management Survey?

ARMS is USDAs primary survey for the annual collection of data from farm operators about their:

- Farm ownership, governance, management, and performance
- Choice of practices, inputs, and expenditures to produce crop and livestock commodities
- Household demographic attributes, economic and financial activities

Program Activities Supported by ARMS

- Responding to Mandates: Income for farms, Costs for Commodities, Status of Family Farms
- Support for U.S. National Economic Accounts (GDP, Personal Income)
- Providing Data to Respond to USDA Policies and Programs
- Enabling Research to Inform Decision Makers on a Variety of Issues

Developing a two-tiered data dissemination system

GENERAL PUBLIC INFORMATION TOOL

- A. Speed & Security constraints
 - ① 1. Hire systems expert - Mitch, John
 - 2. System load tests - Karl
 - 3. Multi-query problem - Charles
- B. Peer Review of Cell Suppression algorithms - Phil Fulton
- C. Data - Phase II Field Practice - Xiang
- D. Add more row & Column Variables - Yu, Xiang
- E. Graphs & Mapping - Yu + GIS Team
- F. Status Bar - Yu
- G. Unit & Row Class Variable Labels - Yu
- H. Interface Development - Yu

1996-2003 All DATA

Research Tool Licensed Users

- A. Defined all potential row & column variables
 - ① code by year & create new data (Phase III & II) - Mitch, Xiang
- B. Define & create alternative table statistics - Yu, Charles, Xiang
- C. Any Row Variable (Code & Interface) - Yu
- D. System Documentation - Everyone
- E. Ability to Merge Phase III & Phase II data - Mitch, Bill, Charles
- F. More research tools - regression, etc. - Xiang, Yu
- G. Ability to merge ARMS with other data (NRI) - Mitch, Dave
- H. Ability to create row & classification variables - Yu, Xiang
- I. Graphs & Maps -
- J. Interface development - Yu

income = f(ages, computer, retire)

only 2001 - Mary Christine

March Deadline

35 500

Initial system architecture

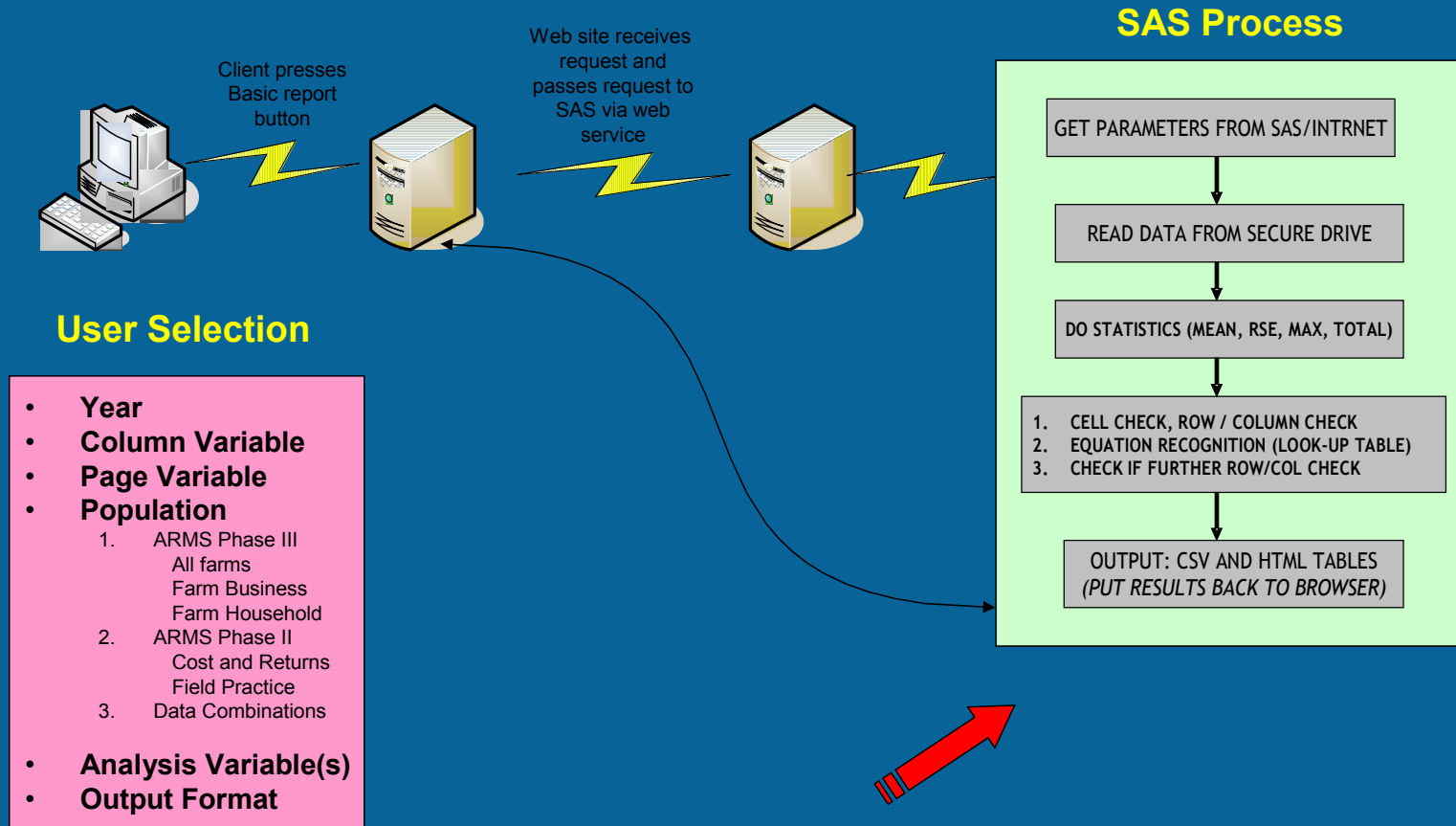


Illustration of cell suppression algorithm

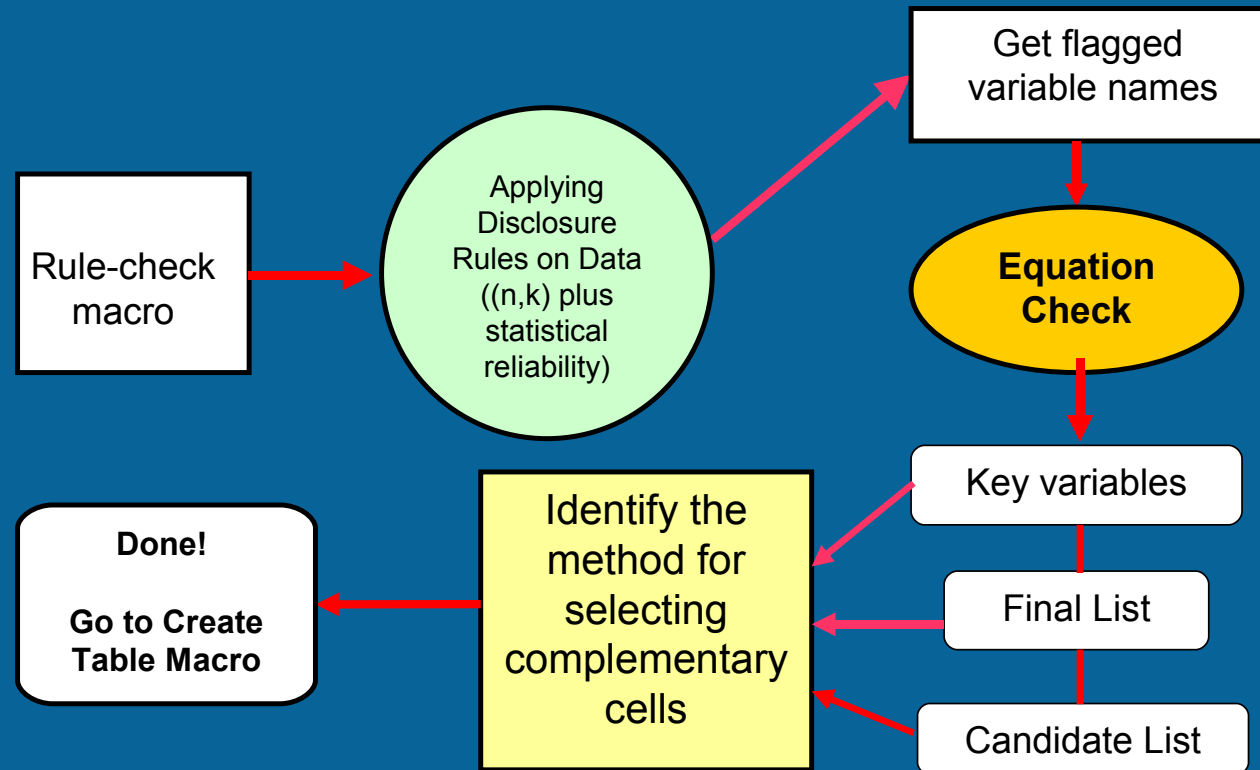


Table after primary and secondary cell suppression

Farm structural characteristics, for Farm Operator Households, by Operator Age, for 1997

Collapsed Farm Typology=Commercial farms

Item	Operators 34 years or younger		Operators 35 to 44 years old		Operators 45 to 54 years old		Operators 55 to 64 years old		Operators 65 years or older		All farms	
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE
Number of farms	8,814	13.4	36,412	4.8	40,827	5.8	25,322	11.5	13,869	11.5	125,044	2.8
Share of farms (%)	7.0	13.3	29.1	3.4	32.7	6.8	20.3	10.0	10.9	10.4	100.0	NA
Share of value of production (%)	**	NA	**	NA	32.2	6.3	21.2	9.7	12.6	13.5	100.0	NA
Share of acres operated (%)	5.7	24.6	25.6	4.0	31.3	6.9	19.0	10.4	18.4	10.6	100.0	NA
Acres operated per farm	1,328	27.7	1,454	5.5	1,588	8.9	1,557	10.8	2,795	12.2	1,856	5.5
Full owner	**	NA	14.0	15.6	18.7	9.5	18.7	14.1	**	NA	18.0	6.9
Part owner	**	NA	66.1	4.2	66.3	3.0	70.0	5.6	**	NA	66.2	2.1
Full tenant	22.0	19.7	19.9	8.4	15.1	11.9	11.3	18.2	10.9	15.3	15.7	6.5
Average operator age	31	1.1	40	0.2	49	0.4	59	0.7	70	0.7	50	0.7
Farming	98.4	1.0	93.6	2.2	89.0	2.9	92.8	2.2	85.8	4.2	91.4	1.4
Something else	**	NA	**	NA	**	NA	**	NA	**	NA	6.7	16.9
Retired	**	NA	**	NA	**	NA	**	NA	**	NA	1.9	29.0
Less than high school	**	NA	3.2	43.6	4.8	17.1	9.7	20.8	**	NA	6.9	8.9
Completed high school	**	NA	43.5	6.4	33.7	8.1	45.1	10.6	**	NA	40.9	4.6
Some college	31.4	19.0	33.9	6.4	28.8	10.8	24.4	13.1	20.4	15.0	28.6	5.7
years college or more	22.6	17.2	19.4	10.8	32.8	6.9	20.7	30.6	13.7	27.1	23.6	5.2
Less than 500	**	NA	**	NA	**	NA	**	NA	**	NA	2.0	18.5
500 to 999	**	NA	**	NA	**	NA	**	NA	**	NA	2.3	15.4
1,000 to 1,999	**	NA	**	NA	13.0	24.5	9.6	18.9	16.4	11.4	10.3	11.2
2000 or more	96.8	1.1	89.4	2.6	83.5	3.8	83.7	2.9	76.6	3.6	85.5	1.5

** Estimate does not comply with ERS disclosure limitation practices, or is not available.

The Relative Standard Error (RSE) is the standard error of the estimate expressed as a percent of the estimate. The larger the RSE, the less reliable the estimate.
Source: Agricultural Resource Management Survey, USDA.

Extranet for advanced analysis used same system architecture but different menu

Agricultural Resource Management Survey
brought to you by USDA's Economic Research Service
and the National Agricultural Statistics Service

ARMS overview
contact us
Home

[Go Back To Main Menu](#) [Tool](#) [Overview](#) [Documentation](#)

1.) Select the year for your report
2002

2.) Select the version of questionnaire
All Versions

3.) Select global variables for your report

Farm assets
Current Assets
Livestock inventory
Crop inventory
Purchased inputs
Cash invested in growing crops
Prepaid insurance
Other assets
Non-current assets
Investment in cooperatives
Land and buildings

4.) Select comprehensive statistics
First look at global variables you selected

Optional: create new global variables as you need

Define new variable using variables you input

Edit your equation using candidate variables

Weighted Total
Weighted Mean
Weighted Median
25th Percentile
75th Percentile

If you are satisfied with your selection, please continue on step 5. Otherwise, clear your selections in the above. [clear](#)

5.) Select global categorical variables

Debt/asset class
Age class of principal operator
Census division
Census region
Economic size class-26 categories
Economic size class-20 categories
ERS farm resource region
Beale code (1993)
Geographic designation, black
Geo-designation, commuting, 1990
Geo-designation, federal lands, 1987
Geo-designation, farming-dependent, 1989
Geo-designation, government-dependent, 1989
Geo-designation, hispanic
Geo-designation, manufacturing-dependent, 1989
Geo-designation, mining-dependent, 1989
Geo-designation, native american
Geo-designation, nonspecialized, 1989
Geo-designation, PLI regions, 1995
Geo-designation, persistent poverty, 1990
Geo-designation, retirement destination, 1990
Geo-designation, transfer-dependent, 1989
Geo-designation, services-dependent, 1989
Geo-designation, economic specialization
Legal form of farm organization
1 = crop, 2 = livestock

OR: make a new categorical variable

☐ Check the box to create your own categorical variable

Select the candidate variable you want to categorize

Farm assets
Current Assets
Livestock inventory
Crop inventory
Purchased inputs
Cash invested in growing crops
Prepaid insurance

5 number of categories

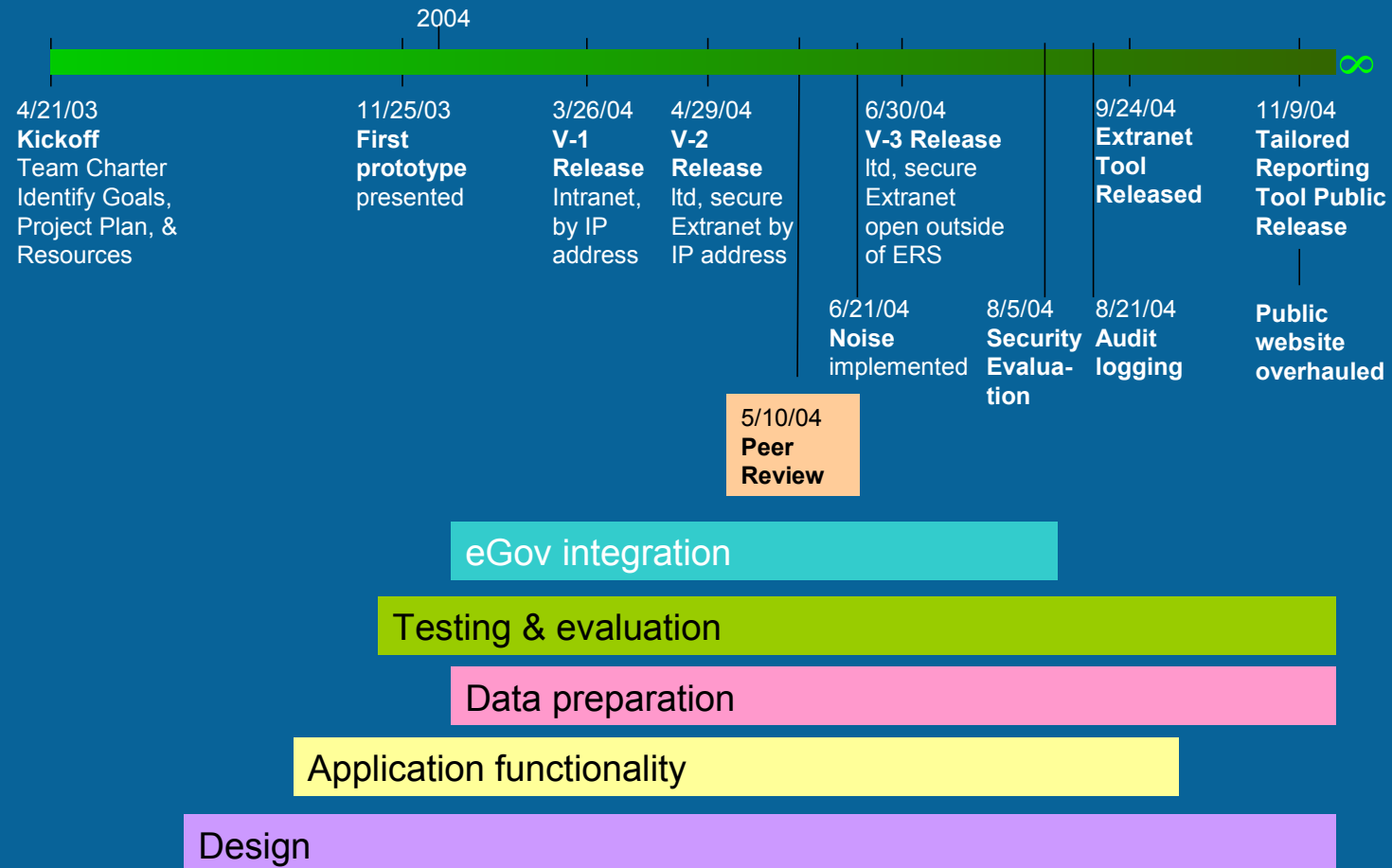
☒ Equal size groups ☐ Define your own groups

If defining your own groups, please put value ranges here.

First look at categorical variables you wanted

If you are satisfied with your selection, please continue on step 6. Otherwise, clear your selections in the above. [clear](#)

Project time line and milestones: Peer Review



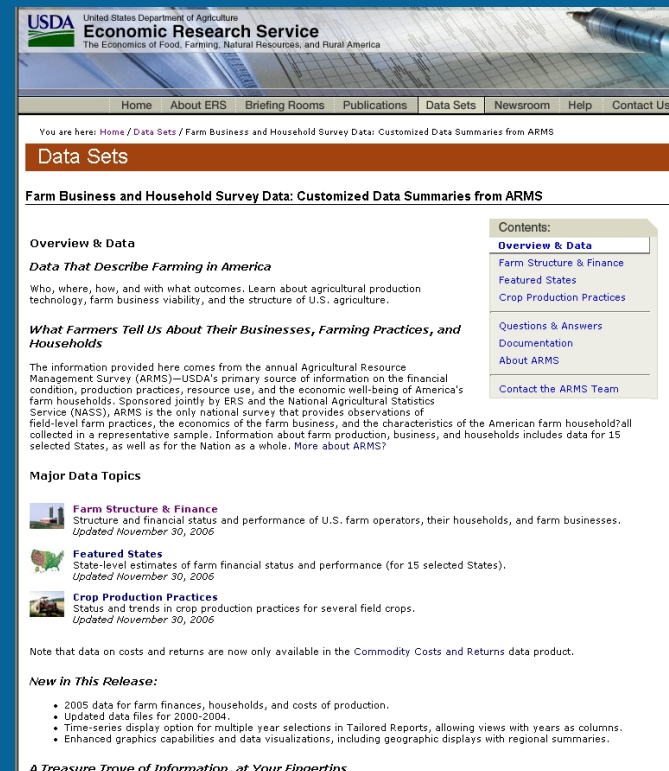
Peer review outcome

Peer review made an invaluable contribution that identified strengths and weakness of the working prototypes and established the major improvements necessary prior to implementation. There were three primary areas of concern:

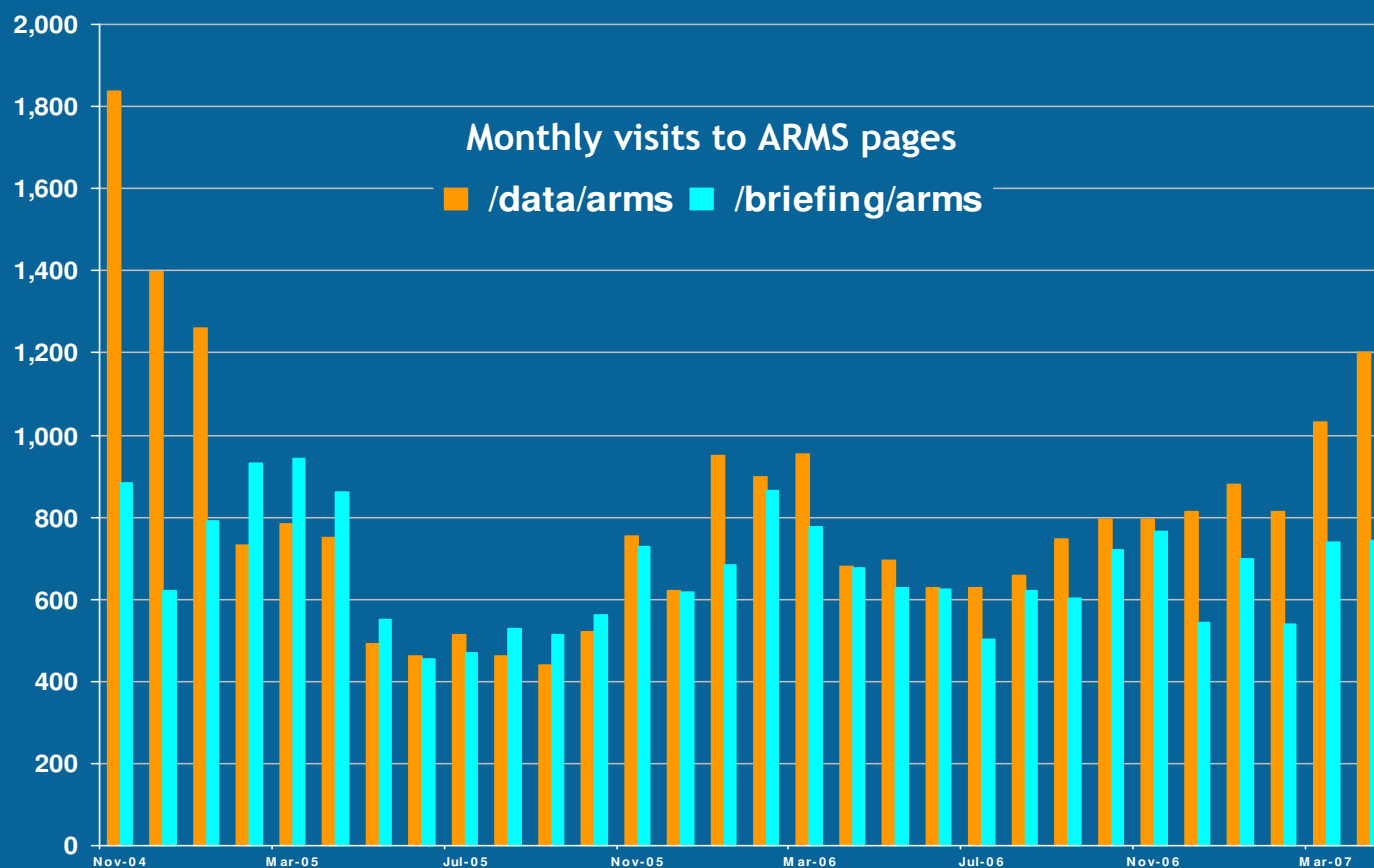
- Strengthening data security and protecting confidentiality
- Delivery speed and system load capabilities
- Access tracking capabilities

Tailored Reports: From prototype to final product

- System Enhancements
 - ★ Noise added to weights
 - ★ Data preprocessed
 - ★ SQL database
 - ★ Faster response time
 - ★ Graphic capabilities



Tailored report capability widely accepted and used

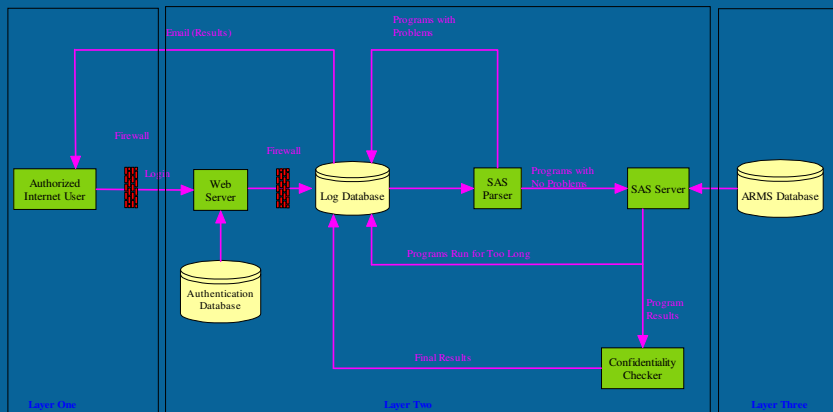


Future enhancements focused on advanced statistical analysis

- In house remote access

- ## ★ Complicated

- ★ Expensive



- Data enclave

