Innovation in the Generation of Official Statistics for Livestock and Poultry through the Use of LPSD-WebApp

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Abstract

The Livestock and Poultry Statistics Division (LPSD) of the Philippine Statistics Authority (PSA) used Excel-based system in the preparation, consolidation, generation, data validation and review of livestock and poultry estimates at the national and sub-national level. In 2024, the division developed and implemented nationwide the use of LPSD-WebApp. This is a web-based platform addressing the inefficiencies in the previous process such as repetitive tasks from the preparation of workbooks for the conduct of data review and validation up to the generation of livestock and poultry statistics, and the submission and monitoring of field reports. The LPSD-WebApp aims to automate the submission and monitoring of reports; reduce time for the consolidation of estimates; and establish a centralized database accessible to authorized users anytime and anywhere. As a result, the system eliminated manual processes in the preparation and consolidation of workbooks for data review and validation. It also enabled the automatic sending of emails to target recipients and establish a unified database and submission log. With this innovation, the users were able to devote more time in reviewing, validating, and releasing official statistics. By reducing workloads and cutting the organization's workday requirements by 996 workdays, the WebApp not only enhanced operational efficiency but also strengthened overall user satisfaction compared with Excel-based system. This also helped reduce the release timeline from 45 days to 39 days after the reference quarter.

Keywords: livestock and poultry, official statistics, database, innovation

1. Introduction

The Philippine Statistics Authority (PSA) is mandated to compile, analyze, and disseminate agricultural statistics, as well as to conduct sample surveys, including but not limited to those on farm production and average farmgate prices. These functions ensure the availability of reliable agricultural data to support evidence-based policymaking, program planning, and research. In fulfilling this mandate, the PSA adheres to an operational framework for the generation of official statistics on livestock and poultry. This framework encompasses the updating of survey materials and the training of personnel, data collection and field supervision, data processing, data review and validation, and the release of official statistics.

The conduct of data review, validation, and analysis of estimates is a critical component in ensuring the accuracy and reliability of statistical outputs. In this process, the survey data is scrutinized through checking of outliers and consistency among data items in the questionnaire and validation using auxiliary information from administrative reports.

For over two decades, the Livestock and Poultry Statistics Division (LPSD) of the PSA, and the livestock and poultry (LP) focal persons from the field offices, used Excel-based system in the preparation and generation of workbooks for data review and validation. These workbooks serve as tool in estimating livestock and poultry. The survey data along with the auxiliary information gathered from administrative reports are compiled in these workbooks to facilitate the estimation.

To streamline the process, the Electronic Data Review Workbooks (EDRW) Compilation System and the Livestock and Poultry Farmgate Prices Aggregating System (LPFPAS), both Excel-based tools, are utilized by LP focal persons from LPSD, Regional Statistical Services Offices (RSSOs), and Provincial Statistical Offices (PSOs) to review and validate data using the Supply-Disposition (S-D) Technique. It is used to present the dynamics of the livestock and poultry commodities and validate the consistency of the production data derived from the surveys. It shows the trend, ratio, and the interrelationship of data items and indicators for a particular reference period. Meanwhile, the LPFPAS enables the users to consolidate the survey results, review and compare the current and previous farmgate price estimates, and aligns price with production data by commodity. These systems, while functional and appropriate for analyzing data, are susceptible to errors such as incorrect linking of files and formula inconsistencies. Additionally, the manual submission and monitoring of reports contribute to inefficiencies, placing considerable time and burden for LP focal persons.

In response to these challenges, the PSA LPSD introduced an innovative solution through the development of the LPSD Web Application (LPSD-WebApp), an online reporting system designed to enhance the generation of official statistics. It addresses limitations of the previous Excel-based systems, including the elimination of repetitive tasks involved in workbook preparation and report generation. Furthermore, the system facilitates automated submission and real-time monitoring of reports, thereby improving data processing efficiency, accuracy, and timeliness. Through this innovation, the PSA continues to advance its commitment to modernize statistical processes and uphold the integrity and quality of official statistics in the livestock and poultry sector.

2. Objectives

The LPSD-WebApp aims to automate and reduce the time in the consolidation, review and generation of official estimates; automate the submission and monitoring of reports from field offices; and establish a centralized database accessible to authorized users anytime and anywhere.

3. Methodology

The LPSD conducted three (3) activities to improve the existing process on data review, validation and analysis, and submission and monitoring of reports. These were the following:

A. Assessment of the current workflows/processes

In 2023, the LPSD conducted a series of meetings to evaluate the existing workflows and processes employed by focal persons on the use of EDRW and LPFPAS and the submission and monitoring of reports. These meetings aimed to identify inefficiencies within the current systems and to formulate appropriate interventions. The outcomes of these discussions, including the issues raised and the corresponding proposed solutions, are summarized in Table 1.

Table 1. List of Issues in the Old System and Proposed Solutions for its Improvement

User	Issue/s	Proposed Solution/s
(1)	(2)	(3)
Central Office	A. Pre-survey Activities 1. Each province/region uses a unique and separate template for S-D/LPFPAS for each commodity. 2. Excel files are manually generated every quarter for each province/region and uploaded to Google Drive. B. Post-survey Activities 1. No centralized system for submission tracking; monitoring requires email searches and tagging or labeling, and constant follow up of required reports to field offices. 2. Submissions from RSSOs/PSOs are manually downloaded from email and consolidated by updating links.	1. Develop a standardized template for each commodity for the generation of S-D/LPFPAS that is replicable across all users. 2. Provide accessible templates that can be generated on-demand, and automatically linked to each user's assigned province/region. 1. Develop a system that enable LPSD to track real-time submission status by province/region through system-generated logs. 2. Automate consolidation of RSSO submissions by commodity.
RSSOs/PSOs	A. Pre-survey Activities 1. Excel files from Google Drive must be manually downloaded. B. Post-survey Activities 1. Manual consolidation of EDRW/LFPFAS through link updates. 2. Data review, validation, and analysis are performed locally in Excel, without centralized progress tracking.	1. Provide online access to files with user authentication, eliminating the need for downloading and uploading. 1. Enable automatic consolidation of outputs by RSSOs/PSOs. 2. Implement real-time validation that can be monitored by all users. 3. Provide a platform for submission of reports with automated notifications to

User	Issue/s	Proposed Solution/s
	3. Reports are submitted as email attachments, requiring manual consolidation and follow-up reminders.	target recipients, reducing the need for email attachments and follow-ups.

B. Design and development of the new system

1. Design

The LPSD-WebApp was designed using HTML, CSS, and JavaScript for the front-end, while Google Apps Script (GAS) served as its main backbone for automating tasks and integrating with Google Workspace services such as Google Sheets, Gmail, and Google Drive. This was used because of its integration to google services which is the current web-based email service provider of PSA, low maintenance requirements, ease of deployment without the need for external servers. It consisted of three major components:

a. User Interface Layer

The User Interface (UI) Layer of the LPSD-WebApp serves as the primary interaction point between the end-users and the system. It focuses on usability, accessibility, and consistency, ensuring that users with varying technical backgrounds can navigate the application with minimal training. Key principles applied in the design include:

1. Clarity and Simplicity – The interface adopts a clean layout with organized menus, tab navigation, and context-driven modules. This minimizes cognitive load, reduces errors, and ensures that essential functions (e.g., uploading of datafiles, viewing and submission of S-D) are easily shown.
2. Responsiveness and Compatibility – the UI automatically adjusts to different screen sizes and various devices.
3. Consistency Across Modules – All functional modules share a unified design language. Standardized icons, input components, and notification styles improve user familiarity.
4. Guided Navigation on Modules – The system provides a structured flow when moving across modules, ensuring that users follow the correct sequence of activities. Contextual instructions and alerts help users stay on track, reducing confusion and improving compliance with standard workflows.
5. Accessibility– The UI follows accessibility considerations such as readable font sizes, color contrast compliance, and keyboard navigation support, enabling use by a broad range of staff regardless of digital literacy or physical limitations.
6. Feedback and Transparency – Visual indicators such as progress loaders and success/failure notifications give users immediate feedback on their actions, reinforcing confidence and accountability in the system.

The User Interface Layer strengthens the overall effectiveness of the LPSD-WebApp. It bridges the gap between complex backend processes and the usual processes of users, ensuring that official livestock and poultry statistics are generated efficiently and reliably.

b. Application Logic Layer

The Application Logic Layer of the LPSD-WebApp is the core functional engine that governs how users' actions are processed into standardized workflows for livestock and poultry statistics. Positioned between the User Interface Layer and the Data Layer, this

layer ensures that all modules operate consistently and comply with the operational framework in generating statistics. Its primary role is to translate user interactions into structured processes, whether uploading provincial outputs, validating entries, or generating reports, while automating repetitive tasks and safeguarding data quality.

Key functions of the Application Logic Layer include:

1. Modules
    a. *CDSPDP*: Manage the uploading of reports from slaughterhouse and poultry dressing plant.
    b. *LPS:H and LPS:E*: Manage the uploading of provincial output tables from surveys. Once uploaded, the system automatically picks up the data and link it to the S-D for validation and review.
    c. *EDRW*: Acts as the central validation hub, applying statistical checks, completeness rules, and consistency logic across uploaded provincial datasets. Errors are flagged for correction, while valid records proceed to consolidation.
    d. *LPFPAS*: Executes automated linking and aggregation of farmgate prices across provinces, regions, and national levels, ensuring comparability and timeliness.
    e. *Reports*: Provides a repository for uploading various reports from field offices.
2. Business Process Automation – Automates generation of provincial and regional EDRW and LPFPAS sheets, linking between these generated sheets, picking up of previous data from reference sheets, consolidation, and report generation, reducing manual interventions and ensuring efficiency in provincial-to-national workflows.
3. Security and Role-Based Access – Embeds access control so that only authorized users can access the platform.
4. Error Handling and Logging – Captures errors in uploads, submissions, aggregations, providing traceable logs for Central Office users while preserving data integrity.

Through these mechanisms, the Application Logic Layer ensures that the LPSD-WebApp functions as a coherent, rules-driven, and standards-compliant platform, enabling streamlined handling of survey outputs.

c. Data Layer

The Data Layer of the LPSD-WebApp is responsible for the storage, organization, and accessibility of all statistical outputs generated through the system. Unlike traditional file-based reporting, this layer leverages Google Sheets and Google Drive as its primary storage platforms, ensuring that data is both cloud-based and easily shareable across organizational levels.

All outputs from provincial uploads, automated pickups, and consolidated reports are stored in structured Google Sheets, which are then saved to designated Google Drive repositories once successfully submitted. This design ensures that every dataset is version-controlled, centrally organized, and readily retrievable for validation, consolidation, or reporting purposes.

Key features of the Data Layer include:

1. Cloud-Based Accessibility – Since storage is managed through Google's infrastructure, users can securely access their authorized datasets from any device with an internet connection, reducing reliance on local machines.

2. Centralized Repository – Submitted files are systematically saved to Google Drive, enabling users to work from a single source for data.
3. Structured Organization – Datasets are maintained in pre-defined folder hierarchies (e.g., by survey type, province, or reference period), supporting efficient retrieval and reducing the risk of misplaced or duplicated files.
4. Seamless Integration – Direct linkage between Google Sheets and the Application Logic Layer allows real-time pickup of data for EDRW, LPFPAS, and CDSPDP workflows without manual transfer.
5. Scalability and Reliability – The use of cloud storage enables the system to handle growing volumes of survey outputs and reports without compromising performance or accessibility.

Through this design, the Data Layer provides the foundation of reliability and accessibility for the LPSD-WebApp. It ensures that official livestock and poultry statistics are not only securely stored but also easily accessible for collaborative use across PSA.

2. Development

The development phase of the LPSD-WebApp focused on ensuring that the system was both technically sound and operationally aligned with the established workflows of processing the livestock and poultry statistics. Before deployment to field offices, the LPSD conducted comprehensive testing activities to validate the system's readiness.

During this stage, LPSD carefully evaluated the following:

1. Workflow Compliance – The proposed workflow was simulated and tested to confirm that the system correctly reflected the intended step-by-step processes from provincial submission up to central office consolidation.
2. Formula Accuracy – Embedded formulas within the workbooks were checked to ensure accuracy and consistency of automated computations, including linkages across modules.
3. Data Capture Integrity – The system's ability to correctly capture data from uploaded provincial and regional workbooks was verified. Particular attention was given to ensuring that automatic pickups into the EDRW, LPFPAS, and CDSPDP modules reflected the expected results.
4. Inter-Workbook Linkages – Cross-references between workbooks were tested to ensure seamless integration, minimizing the risk of broken links, missing values, or duplication of records.
5. Automated Formula Updates – The system incorporated the capability to correct, improve, or update formulas across all provincial and regional workbooks by running centralized Google Apps Script codes. This eliminated the need for manual adjustments in individual files and ensured uniform application of corrections and enhancements across all datasets.
6. Pickup of Previous Data – To strengthen continuity and historical referencing, the system was designed to automatically retrieve data from reference sheets of prior reporting periods, enabling consistent time-series analysis and reducing the risk of data loss or manual re-entry.

Through this iterative testing and enhancement process, errors were identified, corrected, and re-evaluated before deployment. These improvements provided confidence that the LPSD-WebApp was stable, accurate, and adaptable, ensuring smooth adoption in field offices while maintaining consistency in statistical processing from provincial to national levels.

C. Implementation and Evaluation of the new system

1. Implementation
   The LPSD-WebApp was deployed to the field offices on a staggered basis and was officially launched in the first quarter of 2024. The objective of this initial deployment was to automate the submission of reports from the field offices, establish a structured archiving system in Google Drive, wherein reports submitted by field offices were automatically stored in their designated folders for ease of reference and monitoring, and generate submission logs for tracking purposes. This was followed with the integration of EDRW into the LPSD-WebApp in the first quarter of 2025 to easily generate the Supply-Disposition workbook of livestock and poultry commodities, and facilitated the review of data across provincial, regional, and national levels. Finally, the LPSD continued to incorporate the LPFPAS in the second quarter of 2025.

2. Evaluation
   The system was evaluated quarterly through the review of regional and provincial narrative reports submitted by the field offices. In September 2025, LPSD conducted an assessment survey to obtain feedback from system users. The purpose of this evaluation is to formally assess the effectiveness of the LPSD-WebApp from its implementation covering 2024 to 2025, and to gather recommendations for further system improvement. The results of this evaluation are presented in Section 4: Results and Findings.

4. Results and Findings

A. Observed Improvements in the Survey Operations
After implementation of the LPSD-WebApp from first quarter of 2024 to second quarter of 2025, various improvements were observed and are briefly discussed below:

1. Central Office
   During the pre-survey operations, the LPSD was able to eliminate the processes of updating the template for S-D/LPFPAS and replicating it to all provinces, if there are issues on linking or formula, and uploading of the EDRW and LPFPAS in the google drive. The observed improvements during the post-survey operations are as follows:
   a. The Monitoring Team uses the submission log to track timeliness, while completeness is verified through automatic archiving in the designated folder, eliminating manual email searches and Google Drive archiving; and
   b. Automatic generation of S-D and LPFPAS consolidator eliminates manual downloading of regional reports and updating of links in the Excel-based systems.

2. RSSOs/PSOs
   The observed improvements in the process for RSSOs and PSOs are as follows:
   i. Automatic generation of S-D and LPFPAS consolidator eliminates manual downloading of files and updating of links in the Excel-based systems;
   ii. Real-time corrections of formulas or links are applied without replicating the EDRW/LPFPAS across provinces and regions. Field offices are advised of any system revisions; and
   iii. Automatic email sending to target recipient.

B. User Feedback and Acceptance
The results of the assessment survey for the implementation of LPSD-WebApp by the users from central office and field offices are as follows:

1. Ease in Using the System
   a. Central Office

      The LPSD-WebApp showed a distribution concentrated on the upper scale in terms of ease of use. Majority of respondents rated it Excellent (54.5%), and Very Good (27.3%) while 18.2 percent rated it Good, and no responses fell in the lower categories. This distribution resulted to a mean of 4.4 and a standard deviation of 0.8. (Table 2)

Table 2. Ease of Using the System in the Central Office

Rating	Frequency	Percent Share
(1)	(2)	(3)
5 – Excellent	6	54.5
4 – Very Good	3	27.3
3 – Good	2	18.2
2 – Poor	0	0.0
1 – Very Poor	0	0.0
Total	11	
Mean	4.4	
Standard Deviation (SD)	0.8	

   b. Field Offices

      Among the 11 respondents from RSSO, majority rated the LPSD-WebApp in terms of ease of use as Very Good (54.5%), obtaining a mean rating of 4.1 (SD = 0.7). For the 52 respondents from PSO, majority rated the LPSD-WebApp as Very Good (51.9%). Consistent with the RSSO results, PSO respondents gave a mean score of 4.2.(Table 3)

Table 3. Ease of Using the Systems in the Field Office

Rating	RSSO		PSO	
	Freq.	Percent Share	Freq.	Percent Share
(1)	(2)	(3)	(4)	(5)
5 – Excellent	3	27.3	18	34.6
4 – Very Good	6	54.5	27	51.9
3 – Good	2	18.2	6	11.5
2 – Poor	0	0.0	1	1.9
1 – Very Poor	0	0.0	0	0.0
Total	11		52	
Mean	4.1		4.2	
SD	0.7		0.7	

2. Ease in the Generation/Updating of Supply-Disposition and LPFPAS
   a. Central Office

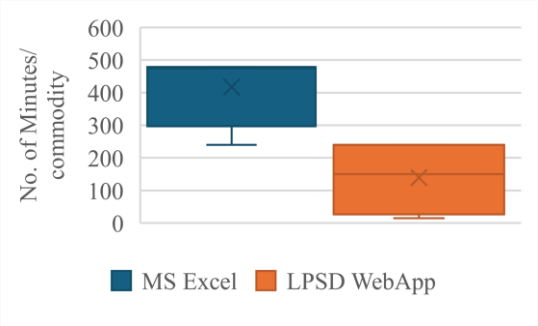
      As to the updating of SD and LPFPAS, the respondents rated the LPSD-WebApp as Excellent (75.0%) and Very Good (25.0%), which obtained a mean rating of 4.8. (Table 4)

Table 4. Ease in the Updating of Supply-Disposition and LPFPAS by LP-Compiling and Aggregating Team

Rating	Frequency	Percent Share
(1)	(2)	(3)
5 – Excellent	3	75.0
4 – Very Good	1	25.0
3 – Good	0	0.0
2 – Poor	0	0.0
1 – Very Poor	0	0.0
Total	4	
Mean	4.8	
SD	0.5	

Excel-based system showed a wider range of time in updating the S-D and LPFPAS per commodity ranging from 240 to 480 minutes. The median was relatively high at 480 minutes, suggesting that most users spent considerable time when using Excel-based system. In contrast, the LPSD-WebApp has a narrower range of 26 to 240 minutes with lower median of 150 minutes. The average time spent using the LPSD-WebApp was also lower at 139 minutes compared with 417 minutes for Excel-based system. (Figure 1)

Figure 1. Box Plot of the Time Spent in Updating the Supply-Disposition and LPFPAS per Commodity



Similarly, the commodity specialist, personnel from Central office assigned in consolidating, reviewing, and releasing statistics on livestock and poultry, the LPSD-WebApp had a mean rating of 4.5 in generating the S-D and LPFPAS. (Table 5)

Table 5. Ease in the Generation of Supply-Disposition and LPFPAS by Commodity Specialist

Rating	Frequency	Percent Share
(1)	(2)	(3)
5 – Excellent	5	62.5
4 – Very Good	2	25.0
3 – Good	1	12.5
2 – Poor	0	0.0
1 – Very Poor	0	0.0
Total	8	
Mean	4.5	
SD	2.2	

In terms of processing time of S-D and LPFPAS per commodity, Excel-based system required considerably more time with an average of 271 minutes compared with only 71 minutes when using the LPSD-WebApp. (Table 6)

Table 6. Average Time Spent in the Generation of Supply-Disposition and LPFPAS by Commodity Specialist
(in number of minutes)

Summary Statistics	Excel-based system	LPSD-WebApp
(1)	(2)	(3)
Mean	271	71
SD	141	85

b. Field Offices

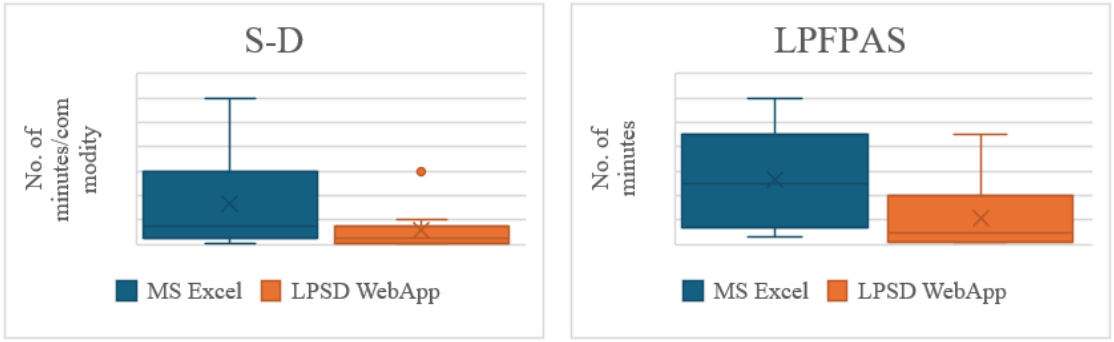
In terms of the ease of generating the S-D and LPFPAS, most respondents from RSSO rated the LPSD-WebApp as Very Good (54.5%). The average rating for the LPSD-WebApp was at 4.2 (SD = 0.9). For PSO, majority of respondents rated the LPSD-WebApp as Very Good (46.2%), with a mean rating of 4.1. (Table 7)

Table 7. Ease in the Generation of Supply-Disposition and LPFPAS in the Field Office

Rating	RSSO		PSO	
	Freq.	Percent Share	Freq.	Percent Share
(1)	(2)	(3)	(4)	(5)
5 – Excellent	4	36.4	17	32.7
4 – Very Good	6	54.5	24	46.2
3 – Good	0	0.0	10	19.2
2 – Poor	1	9.1	1	1.9
1 – Very Poor	0	0.0	0	0.0
Total	11		52	
Mean	4.2		4.1	
SD	0.9		0.8	

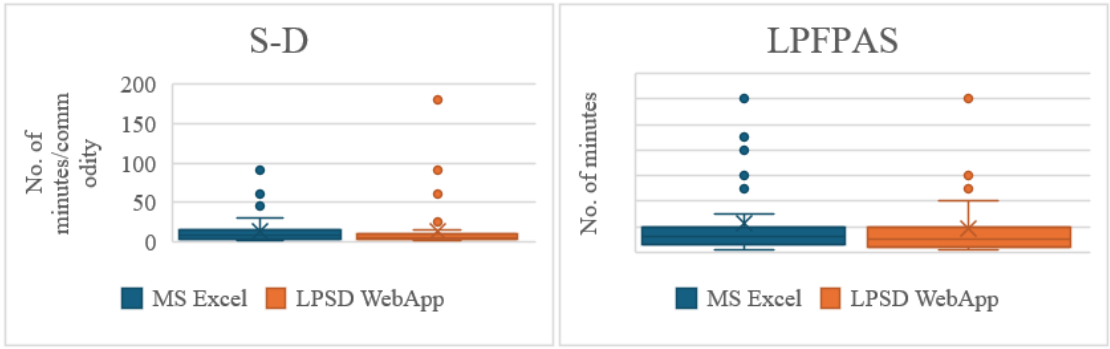
The time required to generate the S-D using the LPSD-WebApp declined from an average of 34 minutes per commodity with Excel-based system to 12 minutes. A similar reduction was observed in the generation of the LPFPAS, with mean decreasing from 27 minutes in Excel-based to 11 minutes in the LPSD-WebApp. (Figure 2)

Figure 2. Box Plot of the Time Spent in Generation of the Supply-Disposition and LPFPAS by RSSO



For PSO, there was only a minimal decline in the average time spent generating the S-D from 14 minutes using Excel-based system to 13 minutes with the LPSD-WebApp. A similar pattern was observed for the LPFPAS, which decreased slightly from 13 minutes in Excel-based system to 12 minutes in the LPSD-WebApp. However, it is noteworthy that 50 percent of the responses for the generation of Supply-Disposition workbook showed a decline in the time range, from three to 15 minutes using the Excel-based system to two to 10 minutes with the LPSD-WebApp. (Figure 3)

Figure 3. Box Plot of the Time Spent in Generation of the S-D and LPFPAS by PSO



a. Ease in the Submission and Monitoring of Reports

i. Central Office

For the ease in locating the reports, most respondents rated the LPSD-WebApp more favorably with 72.7 percent giving it an Excellent rating and 18.2 percent rating it Very Good. The LPSD-WebApp obtained a substantially higher mean score of 4.5. (Table 8)

Table 8. Ease in the Locating the Reports

Rating	Frequency	Percent Share
(1)	(2)	(3)
5 – Excellent	8	72.7
4 – Very Good	2	18.2
3 – Good	0	0.0
2 – Poor	1	9.1
1 – Very Poor	0	0.0
Total	11	
Mean	4.5	
SD	0.9	

For the ease in monitoring the reports, all three respondents preferred the LPSD-WebApp with 66.7 percent rating it Excellent and 33.3 percent Very Good. The mean score for the LPSD-WebApp was at 4.7 with 2.2 standard deviation. (Table 9)

Table 9. Ease in the Monitoring of the Reports

Rating	Frequency	Percent Share
(1)	(2)	(3)
5 – Excellent	2	66.7
4 – Very Good	1	33.3
3 – Good	0	0.0
2 – Poor	0	0.0
1 – Very Poor	0	0.0
Total	3	
Mean	4.7	
SD	2.2	

In terms of the time spent in monitoring the reports, the LPSD-WebApp reduced the average processing time from 6 days to 3 days. (Table 10)

Table 10. Average Time Spent in the Monitoring of Reports
(in number of days)

Summary Statistics	Excel-based system	LPSD-WebApp
(1)	(2)	(3)
Mean	6	3
SD	1	2

ii. Field Offices

For the ease in submission of reports at the RSSO level, majority of respondents rated the LPSD-WebApp as Very Good (63.6%) with a mean rating of 4.4 and variability of 0.5. Similarly, at the PSO level, nearly half of the respondents (48.1%) rated the WebApp as Excellent and 44.2% as Very Good resulting in a high mean of 4.4. (Table 11)

Table 11. Ease in the Submission of Reports in the Field Office

Rating	RSSO		PSO	
	Freq.	Percent Share	Freq.	Percent Share
(1)	(2)	(3)	(4)	(5)
5 – Excellent	4	36.4	25	48.1
4 – Very Good	7	63.6	23	44.2
3 – Good	0	0.0	4	7.7
2 – Poor	0	0.0	0	0.0
1 – Very Poor	0	0.0	0	0.0
Total	11		52	
Mean	4.4		4.4	
SD	0.5		0.6	

The following were the key findings in the implementation of LPSD-WebApp from 2024 to second semester of 2025:

a. The LPSD-WebApp substantially reduced processing and updating time, especially for S-D and LPFPAS generation in the CO and RSSO.
b. Through the automatic generation of Supply-Disposition S-D, which is the linking of workbooks, the workday requirements of PSA declined by **996 workdays.**
c. The LPSD-WebApp outperformed the old process in locating, monitoring, and submitting reports, with shorter processing times.
d. Automatic sending of email to target recipients is also a good improvement in the LPSD-WebApp.
e. All users from CO, RSSO and PSO has a unified database stored in google sheet which can be accessed through the LPSD-WebApp.

5. Conclusion

The LPSD-WebApp significantly outperforms the Excel-based system in terms of efficiency, making it the strongly preferred system especially in the Central Office. Across all levels of user, the LPSD-WebApp consistently received higher ratings and delivered substantial improvements in processing time for updating, generating, monitoring, and submitting reports. By reducing workloads and cutting the organization's workday requirements by **996 workdays**, the WebApp not only enhanced operational efficiency but also strengthened overall user satisfaction compared with Excel-based system. Through this innovation, the timeline for the release of official statistics on livestock and poultry was revised from 45 days to 39 days after the reference quarter.

6. Recommendations and Ways Forward

It is strongly recommended that the LPSD-WebApp be continued as the primary system for statistical data processing and reporting replacing the Excel-based approach. To sustain and maximize its benefits, continuous system refinement, and dedicated technical support should be prioritized. This will ensure that the gains in efficiency, accuracy, and user acceptance are maintained and further enhanced over time. It is also recommended that LPSD should explore the applicability of other web-based systems that may offer greater efficiency and further reduce the risk of non-sampling errors.

Moreover, it is recommended that the LPSD-WebApp be replicated to other PSA processes such as monitoring of submission of field office reports as input to the PSA Field Awards and for the compilation of estimates of other PSA surveys which still uses Excel-based systems. For 2026, the LPSD will incorporate the LPSD-WebApp into the Livestock and Poultry Information System (LaPIS), the centralized system for LPSD that will house the major processes of the division's statistical operations.