



DEVELOPMENT
GATEWAY
An IREX Venture

Assessing the Impact of Data Use on Decision-Making in the Ministry of Agriculture



Background

The Ministry of Agriculture (MoA) has invested in digital systems such as the Animal Disease Notification and Investigation System (ADNIS), Disease Occurrence and Vaccination Activity Reporting System (DOVAR), Ethiopian Livestock Identification and Traceability System (ETLITS), National Livestock Market Information System (NLMIS), and African Asian Dairy Genetic Gains System (AADGG) to generate real-time data and promote data-driven decision-making, while improving livestock sector data management, reporting, and overall decision-making. These platforms support key functions including livestock registration and movement tracking, disease surveillance, genetic improvement, and market information systems.

The aLIVE project has provided structured data use training and subsequent hands-on technical support to the above system owners and experts across the livestock sector. The objective was to promote a data use culture within the sector by strengthening technical capacity in data management, analysis, visualization, and reporting, while encouraging the practical use of data for planning, monitoring, and decision-making.

An initial training assessment conducted by the aLIVE team focused on system owners' learning outcomes and immediate capacity improvements; however, we also needed to understand whether these trainings and support created broader institutional change. Therefore, an additional assessment conducted by the aLIVE team explored whether and in what ways mid- and high-level management at the MoA observed changes in data use culture, reporting practices, and decision-making processes among MoA staff following the aLIVE support.

This assessment primarily captures the perspectives of mid- and senior-level leadership on the sector-level impact of the training and hands-on support. It reviews perceived improvements in data quality, timeliness, analytical reporting, visualization practices, and the use of data in routine management and strategic processes. It also highlights the critical role of senior leadership by clarifying what higher officials need to do to strengthen accountability, create demand for evidence-based reporting, and build a stronger data use culture across the Ministry. In addition, it identifies the remaining barriers and strategic priorities required to fully institutionalize evidence-based decision making within the Ministry.

1. Purpose of Assessment

The aLIVE project conducted this assessment to evaluate the impact of the project's structured data use training, along with the subsequent hands-on technical support provided. The training and hands-on support were provided to system owners and experts of the livestock sectors within the MoA.

The aLIVE project designed the training and technical support to not only enhance individual capacity but also to drive behavioral change, strengthen accountability for data use, and contribute to the institutionalization of a data-driven decision-making culture across the livestock sector.

The primary goal of the training was to strengthen practical competencies in data management, analysis, visualization, and interpretation, while fostering the routine use of data for planning, performance monitoring, and evidence-based decision-making.

Specifically, the training focused on building skills in data cleaning, validation, and standardization; use of analytical tools such as Excel and Power BI; development of dashboards and visualizations; and application of analytical methods such as trend analysis, comparative analysis, and performance tracking against targets. In addition, the training emphasized data interpretation through visualization, enabling experts to translate data into actionable insights for management decisions.

This training was complemented by ongoing hands-on technical support designed to reinforce learning and ensure practical application within real work contexts. Examples of this support include one-on-one mentoring and coaching sessions with system owners; guided development and refinement of dashboards and reporting templates; support in extracting and integrating data from key systems such as ADNIS and DOVAR; troubleshooting data quality and system usability challenges; and facilitating review sessions to improve the analytical depth and clarity of routine reports. The support also included feedback loops with supervisors and leadership to align technical outputs with management expectations.

To ensure a holistic understanding of institutional change – i.e., a strengthened culture of data use, we conducted interviews at three distinct governance levels: Desk Heads (immediate supervisors of technical experts), Lead Executives (mid-level management responsible for departmental oversight), and the State Minister level (senior strategic leadership). This multi-tiered approach enabled us to capture both operational-level improvements and strategic-level perceptions on the integration of data into management and policy processes. It also allowed us to identify gaps in alignment between technical capacity improvements among trainees and the higher-level decision-making practices by experts and leaders at the MoA.

We primarily evaluated the consistent, habitual use of livestock data from the five key data systems in the livestock sector at the Ministry of Agriculture indicating the status of the data use culture within the sector. This data represents key information affecting national decision making related to animal health, disease tracing, genetics, livestock markets, and more. We examined different dimensions of performance reporting, including improvements in data accuracy and validation processes; timeliness of reports of the livestock sector; analytical depth and interpretation quality; effectiveness of data visualization and dashboard use; and the degree to which reports are being used by sector leaders to inform operational planning, performance monitoring, resource allocation, and strategic decision-making. We gave particular attention to determining whether reporting practices have moved beyond descriptive activity to more analytical and performance-oriented reporting that equips officials to make decisions based on the data and also use data for their forward planning. In addition, our assessment also identified barriers that limit the institutionalization of evidence-based decision-making across levels, including key system units, experts, and livestock leaders at the MoA, including the State Minister for Livestock.

One immediate barrier we found was that the MoA livestock sector had inherited a static reporting template from the Ministry of Planning & Development (MoPD), which requires submissions to strictly follow a predefined format. While this ensures consistency, it limits the inclusion of detailed analysis and contextual insights, thereby discouraging experts from fully utilizing available data in their reporting. Other barriers included inconsistencies in leadership demand for analytical reporting, limited access to real-time data, and constraints related to data accessibility and integration across systems. By examining these issues, the assessment aims to inform future reforms that strengthen governance frameworks, digital integration, and leadership accountability mechanisms.

Systems Reviewed Under This Assessment:

Under this assessment, we reviewed systems identified by the initial aLIVE roadmap (ADNIS, DOVAR, ETLITS, NLMIA and AADGG) that are supposed to represent critical pillars of the Ministry's digital data ecosystem, such as: supporting livestock registration, disease surveillance, genetic improvement monitoring, animal movement tracking, and livestock market dynamics. Our assessment of improvements across these interconnected platforms provides insight into the Ministry's broader digital transformation journey and its progress toward building a coherent, integrated, and performance-oriented data environment.

Overall, the purpose of this assessment was not only to measure training outcomes but to evaluate the Ministry's readiness to transition from improved technical reporting capacity to fully institutionalize a culture of data use in the ministry, including data-driven governance and strategic management.

2. Major Improvements Observed

2.1 Improved Data Quality and Data Validation

The assessment found that there are significant improvements of data across all systems in data quality management practices. Desk heads, who are the immediate supervisors of the trainees, reported reduced data entry errors, improved duplicate detection, and stronger dataset validation prior to report submission. Data system experts demonstrated greater attention to indicator definitions and consistency between databases, dashboards, and narrative reports. These improvements have enhanced the credibility of reports and strengthened confidence in outputs they generate.

These improvements were observed across a wide range of data areas, including disease outbreak reporting, livestock market trends, and genetic improvement records. As a result, the credibility of reports has improved, strengthening confidence in the outputs generated and supporting more reliable evidence-based decision-making.

2.2 Improved Timeliness and Efficiency

Mid-level officials remarked that the data use training provided by the aLIVE project significantly strengthened practical skills in tools such as Excel and Power BI, which has translated into improved efficiency in data extraction, cleaning, and analysis. As a result, system owners are produced and submit analytical reports monthly and quarterly on a more consistent schedule. Supervisors also noted a reduction in previous delays that were often caused by uncertainty in data interpretation or repeated revisions. According to interviews with experts' supervisors and reports we reviewed as part of this assessment, experts now demonstrate greater confidence in handling datasets and producing structured outputs within defined timelines. However, while internal efficiency has improved, reporting timelines are still occasionally affected by technical barriers in accessing data from centralized systems such as ADNIS and DOVAR. This indicates that although individual capacity has improved, some system-level integration challenges remain, particularly in extracting required data from existing systems due to limited user-friendliness, thus highlighting the need for system upgrades.

2.3 Increased Analytical Depth

One of the most significant transformations observed following the training was the shift from descriptive reporting to more analytical and performance-oriented reporting. Previously, reports largely focused on presenting raw figures or basic counts, such as the number of registered animals or service coverage totals. Currently, reports increasingly include analysis of trends over time, regional comparisons, progress tracking against targets, coverage assessments, and analysis of implementation gaps. Technical experts are applying comparative analysis techniques and performance measurement approaches that enhance the interpretative value of reports. This shift represents a critical movement toward evidence-based management, where data is used not only to describe activities, but to also assess performance, identify bottlenecks, and inform corrective action – for example, shaping decisions on disease response across Ethiopia.

2.4 Improved Visualization and Interpretation

The higher-level officials mentioned that reports supported by visualization helped them to quickly grasp the status of livestock across the country enabling them to take quicker action. The introduction and use of visualization tools by Ministry experts and leaders, particularly Power BI dashboards, have significantly enhanced the presentation and accessibility of data. Reports now incorporate visualization with appropriate graphs, summary tables, and performance dashboards that enable managers to quickly interpret the monthly, quarterly and annual reports. Disaggregated reporting by region, species, service type, and reporting period has strengthened the usefulness of outputs for national and regional management. Importantly, experts are not only presenting visualized data but are increasingly interpreting findings and linking them to operational realities such as capacity gaps in data preprocessing like completeness, validity and timeliness of livestock data. This improvement in data storytelling marks an important step toward decision-oriented reporting. Nevertheless, further refinement is needed to simplify complex visuals with real time data that directly feeds into the livestock databases like Animal disease Identification(ADNIS), Disease outbreak and Vaccination Report (DOVAR), Ethiopian Livestock Identification and Traceability System (ETLITS) and African Asian Dairy Genetic Gains (AADGG) system and more effectively tailors dashboards to all audiences, including expert and decision maker level dashboard users.

2.5 Emerging Data Use Culture

An emerging data use culture is visible within the experts of the ministry of agriculture, livestock sector. For example, experts use data more frequently during review meetings and planning

sessions. Experts also increasingly perceive data as a management and accountability tool rather than simply a reporting requirement, as evidenced by the reports they prepare post-training sessions. However, institutionalization of the data use culture throughout the Ministry, beyond the livestock sector, remains limited.

One of the most notable outputs from the data use training and subsequent hands-on support is the gradual increased interest in a data use culture from the experts as well as the middle level and high-level officials in the livestock sector of the ministry of agriculture. At the technical and supervisory levels, there is clear evidence of a shift in mindset regarding the role of data in management processes. Experts are increasingly referencing data during review meetings, planning sessions, and performance monitoring sessions, indicating that reporting is beginning to move beyond compliance-oriented submission toward practical application to policy, trade, and disease response decisions among others. This shift is significant because it transforms data from a passive reporting requirement into an active decision-support tool. As a result, decision-making processes are becoming more objective, timely, and performance oriented. For example, increased use of data enables higher officials and policymakers to identify disease outbreaks earlier, monitor service coverage gaps across regions, and track progress against national livestock targets with greater accuracy. This leads to more targeted interventions, improved resource allocation, and faster operational responses.

At the policy level, this shift supports the development of evidence-based policies grounded in real system data rather than assumptions or incomplete information. It strengthens accountability by allowing leadership to assess performance using verifiable indicators and encourages more transparent and consistent decision-making across departments. At the livestock sector level, the growing use of data enhances coordination, improves service delivery efficiency, and ultimately contributes to better livestock health outcomes, stronger market systems, and more resilient agricultural planning.

The system owners, which are the direct users of the key datasets from the database, now demonstrate greater confidence in interpreting data and presenting analytical findings to supervisors and management teams. Experts and mid-level officials are now more frequently using reports to highlight performance gaps, regional disparities, system utilization challenges, and implementation bottlenecks. This represents an important behavioral shift, as Ministry staff are increasingly viewing data more as a strategic management tool rather than a routine administrative requirement.

However, while progress is visible and encouraging at operational levels, the institutionalization of a fully embedded data use culture throughout the Ministry remains incomplete. The depth and consistency of evidence-based discussions vary across departments and leadership levels. In some instances, departments produce analytical outputs but do not consistently integrate them into strategic planning, policy formulation, or resource allocation decisions. This indicates that while technical data use capacity across system owners and units has improved, cultural transformation at the organizational level requires sustained leadership reinforcement.

Institutionalizing a strong data use culture requires more than technical skills; it necessitates consistent leadership demand for analytical reporting, formal accountability mechanisms linking performance to verified data, and structured platforms for evidence-based dialogue. This could also be reinforced through practical approaches, such as linking data-use indicators to staff key performance indicators (KPIs) or by incorporating them into annual performance reviews to encourage regular system use and strengthen accountability. Embedding data use into routine management processes, such as quarterly reviews, sector performance evaluations, and planning cycles will also be essential to consolidating current gains.

In summary, the Ministry has taken meaningful initial steps toward cultivating a data use culture. To ensure sustainability and scaling up, this emerging culture must be strengthened through leadership modeling, governance reforms, and integration of data-driven decision-making into formal institutional processes. Doing so will enable the Ministry to fully transition toward performance-oriented, evidence-based governance.

3. Gaps and Challenges remaining

Despite progress, several systemic challenges persist. Organizational-level transformation remains limited, and reports are not consistently translated into strategic decisions. Leadership demand for analytical reporting varies, which affects motivation for deeper analysis.

Technical barriers in extracting data from systems, such as ADNIS, slow reporting processes. The absence of interoperability limits integration and comprehensive analysis. Weak data governance frameworks and limited standardization of templates also constrain consistency and quality.

Skill gaps within the experts of the livestock sector in the ministry of agriculture remain in advanced analytics, forecasting, executive summarization, and data storytelling. Sustained mentorship and refresher training are required to consolidate gains beyond the aLIVE project.

4. Strategic Priorities Identified

Our assessment consistently emphasized several strategic priorities. each of which is critical to strengthening the Ministry's transition toward institutionalized, data-driven decision-making.

First, the Ministry should develop and adopt a formal Data Use Strategy that defines data flow, reporting standards, and decision-making expectations and it is a short-term plan within 6–12

months and led by central planning and policy units.

Second, stronger leadership engagement is essential to ensure consistent demand for evidence-based reporting and it is a short-term and ongoing plan with high attention and led by senior leadership, including State Ministers.

Third, establishing a robust Data Governance Framework for the Ministry that will clarify roles, responsibilities, and quality assurance mechanisms across the sector. This is a medium-term plan, within 1–2 years, and led by a data policy team and participating all data owners, including the ICT department.

Fourth, strengthening digital infrastructure, including centralized data banking and sector-wide dashboards, will improve integration and accessibility. This is a medium- to long-term plan of 1–3 years, ideally led by the ICT unit and/or Digital Agriculture Unit.

Finally, it is important to institutionalize sustained capacity-building programs and experience-sharing platforms. This is an ongoing activity which should be led by HR, training units, and directorates across all levels.

5. Overall Conclusion

The data use training has resulted in measurable improvements in data quality, analytical capacity, visualization practices, and reporting timeliness. The Ministry has transitioned from compliance-based reporting toward analytical and performance-oriented reporting.

However, full institutionalization of evidence-based decision-making requires a data governance reform, digital integration, and sustained leadership commitment. By embedding data use into performance management systems and strategic planning processes, the Ministry can transform reporting systems into a comprehensive decision-support framework. As an immediate next step, senior leadership (State Minister and director general level) should demonstrate continued commitment by instituting a practical accountability mechanism, such as requesting regular (e.g., quarterly) progress updates on data use indicators and ensuring these are reviewed in leadership meetings to drive follow-up actions. In addition to this the senior leadership should also facilitate the preparation of a detailed action plan to the identified strategic priorities in this document.