Improving the IATI Data Value Chain

Phase 2 Report

The second report embeds the identified problems within the wider data value chain, exploring potential solutions.

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1. Introduction

The international development sector's focus on aid effectiveness is increasingly tied to discussions on data-based decision-making (DBDM). As stakeholders seek more evidence-driven approaches to allocating and managing aid, one key initiative in this effort is the International Aid Transparency Initiative (IATI) which was **designed to improve transparency and accessibility** by providing a standardized framework for reporting financial flows, project activities, and outcomes. While IATI has expanded the availability of aid-related information, it was designed to function primarily as a static repository rather than an interactive decision-support system (DSS). As a result, it provides transparency but lacks predictive capabilities or actionable insights, raising questions about how stakeholders can effectively translate data into timely and strategic aid interventions**. This report examines how IATI can evolve beyond a transparency tool to better facilitate DBDM in aid allocation and management.**

2. Background

2.1 Identified Problems of IATI for DBDM

The previous report examined IATI's role in supporting DBDM and the challenges that data quality poses to informed decision-making. These challenges were assessed across five dimensions: intrinsic quality, contextual relevance, representational clarity, accessibility, and user capacity (Wang and Strong 1996). Using reviews of published documentation, technical analysis of its data architecture, stakeholder interviews, and scenario walkthroughs, each approach provided unique insights into IATI's functionality within the context of DBDM, highlighting broader limitations in relying on currently available data and the lack of mechanisms to translate information into actionable insights.

The first dimension, **intrinsic quality**, looks at the accuracy, objectivity, and credibility of the data. IATI benefits from credibility and objectivity since its data is submitted directly by donors, including governments, multilateral organizations, and NGOs, all of whom must undergo an acceptance process as a reporting organization before contributing. However, a lack of unique identifiers and project validation compromises accuracy, leading to issues such as duplicated identifiers and mismatched budget and expenditure records.

Contextual relevance assesses whether data is suitable for its intended use by evaluating its timeliness, completeness, and appropriateness. Given that IATI serves a diverse range of stakeholders, ensuring relevance for everyone is both critical and challenging. Incomplete data inputs, irregular updates, and structural inefficiencies limit the effectiveness of IATI's datasets, making timely and comprehensive decision-making difficult.

Representational clarity focuses on how effectively data is structured and presented to ensure it is easily understood and consistently interpreted. This includes interpretability, which refers to the clarity and coherence of the data that enables users to extract meaningful insights, and consistency, which ensures that data follows uniform formats, definitions, and structures. IATI struggles in this dimension due to the absence of standardized attribute constraints,

leading to inconsistencies such as multilingual inputs and varying outputs across IATI tools, which result in inconsistent information retrieval.

Accessibility, meanwhile, determines how easily users can engage with and utilize data for decision-making. Unlike platforms managing confidential or proprietary information, IATI operates on an open-access model. While this removes security barriers, usability remains a challenge due to issues such as an inability to view trends over time and across regions, fragmented donor scales that fail to link multiple agencies within the same country, and a lack of differentiation between single and multi-funding projects. Additionally, limited visualization options hinder users from interacting with and analyzing data effectively.

The final dimension, **user capacity,** refers to the varying levels of technical proficiency and data literacy among IATI's users. While IATI was designed to be accessible to all, disparities persist in users' ability to input and utilize data effectively. The previous report mentioned user capacity as a key factor affecting other dimensions, since a certain level of technical expertise is needed to effectively engage with intrinsic data quality, accessibility, and usability.

Table 1 Categorized Problems per Dimension from IATI

Dimension(s)	Problem	Observable as…
Intrinsic Quality *Accuracy*	Lack of project validation	Mismatch between budget and expenditure in CDFD
	Lack of unique identifiers	Duplicated identifiers, missing data
Contextual Relevance *Completeness*	Incomplete data inputs	Missing data
Contextual Relevance *Timeliness*	Irregular data updates	Outdated data
Contextual Relevance *Appropriateness*	Structural inefficiencies for real-time use	Delayed responses for queries
Representational Clarity *Interpretability*	Absence of standardized attribute constraints	Inputs in different languages
Representational Clarity *Consistency*	Lack of clear roles among IATI tools	Inconsistent query responses between tools
Accessibility *Ease of use*	Inability to view trends both in time and across regions	Only individual countries/years selectable
	Fragmented donor scales	Lack of linkage between multiple donor agencies in same country
	Lack of single/multifunding differentiation	Projects reported an individual basis
	Lack of visualizations	Non-interactive visualizations
User Capacity	Varying degrees of user capacity	Varying demands on IATI

Source: DFL, first report

It is worth noting that IATI's challenges are cross-cutting and interdependent, meaning that weaknesses in one dimension often reinforce or amplify issues in another. For example, a lack of standardized attribute constraints (representational clarity) can lead to inconsistencies in data formats and errors in financial tracking, ultimately undermining intrinsic quality. Similarly, incomplete and outdated data (contextual relevance) reduces accessibility, limiting stakeholders' ability to extract reliable insights for decision-making.

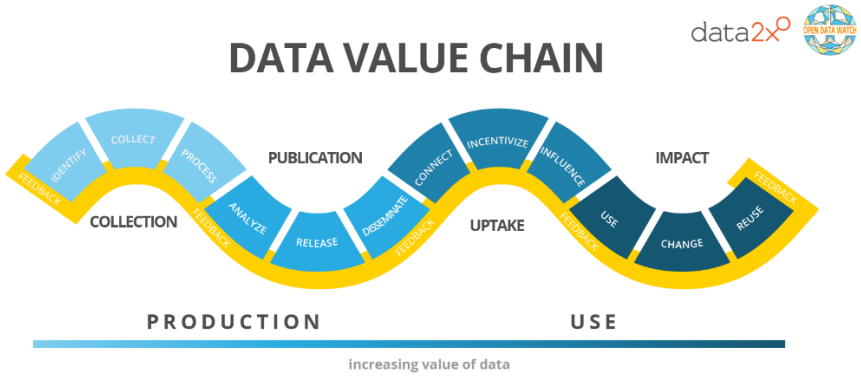
These interdependencies point at the limitations of addressing each challenge in isolation and underscore the need for **a systems approach** when exploring solutions. A

systems-based strategy would not only **address structural data inconsistencies** but also **account for variability in user capacity**, ensuring that solutions are adaptable to different levels of technical expertise and engagement.

2.2 Data Value Chain as a Systems Approach

One way to operationalize a systems approach to IATI's challenges is through the Data Value Chain (DVC) framework, which helps analyze where inefficiencies occur and identify key points for improvement. The DVC outlines the journey of data from its creation to its final use in decision-making and impact, highlighting how data's value increases as it moves through its stages. The framework consists of four main phases (collection, publication, uptake, and impact), each of which plays a role in ensuring that data effectively informs decisions and drives change (Dumbill 2014 as cited by Open Data Watch).

Figure 1 Data Value Chain



Source: Open Data Watch

The process begins with data **collection**, where raw data is sourced from donors, implementing agencies, and partner organizations through reporting mechanisms. This stage involves identifying relevant information, collecting it through structured formats, and processing it to ensure consistency and usability. The quality and completeness of data at this stage influences how effectively it can be used downstream.

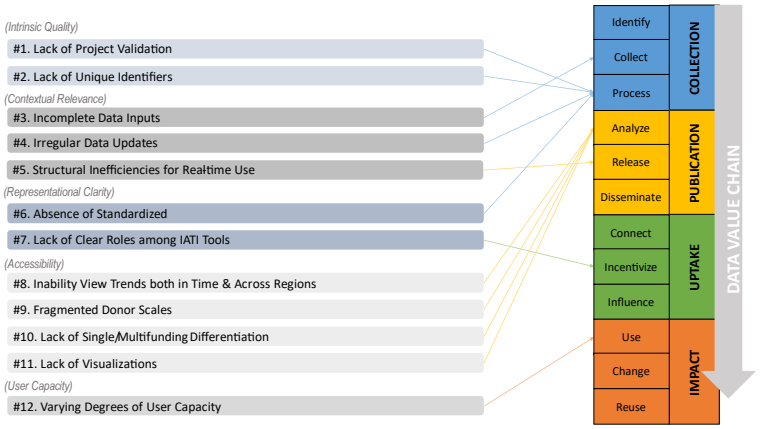
Once collected, the data moves into the **publication** phase, where it is analyzed, categorized, and made accessible to a broader audience. Standardization and clear documentation at this stage ensure that data can be interpreted and applied correctly by different stakeholders.

Following publication, the **uptake** phase determines how actively the data is used. This includes connecting data to relevant actors, incentivizing its use through policies and institutional mandates, and informing decision-making by providing actionable insights. Thus, effective uptake means that the data is well-integrated into decision-making processes that shape aid effectiveness.

The final phase, **impact**, represents the stage where data feeds into informed decision-making. This can take the form of policy adjustments, shifts in aid allocation strategies, or the reuse of data for further analysis and innovation. At this stage, the true value of data is realized as it moves into real-world applications that improve outcomes recursively (Starks 2020).

Viewing IATI through this structured lens helps reveal systemic breakdowns and how inefficiencies cascade through the system. As shown in Figure 2, most of the identified problems cluster around the **collection and publication phases**, demonstrating that foundational issues in data input and structuring significantly impact later stages. Addressing these challenges is crucial to ensuring that data can be effectively utilized downstream. Without improvements in validation mechanisms, standardization, and data structuring, downstream efforts to enhance aid effectiveness through DBDM will remain superficial, as the same inefficiencies persist from the initial stages of the DVC.

Figure 2 Mapping Problems within DVC



Source: Created by authors based on research data

Having identified **where** interventions should take place within the DVC, the next step is to examine **how** to address these issues when engaging with IATI data.

2.3 Differentiated Needs per Stakeholder

While IATI's open structure promotes transparency, it does not inherently ensure equal access or usage. Stakeholders engage with data differently across various phases of the DVC depending on their technical capacity, institutional roles, and motivations (Janssen et al., 2012). Recognizing these variations, this analysis categorizes stakeholders based on their roles in development, their relationship with IATI, and their motivations for utilizing development data, as shown in Table 2.

This categorization serves two primary purposes. First, it contextualizes IATI's key challenges within the groups most affected, further enabling the development of targeted, pragmatic solutions. Second, it highlights how different stakeholders engage with the DVC, providing insights into IATI's efforts to improve data collection and incentivize data usage. Strengthening these mechanisms is critical to enhancing data quality and accessibility within the IATI framework.

This analysis has been informed by semi-structured in-depth interviews with IATI standard setters at UNDP Headquarters, data providers from UNDP Country Offices, and

preliminary consultations with IATI users within the UNDP Seoul Policy Center[1]. Additionally, a review of relevant documents—including meeting minutes from the Annual Community Exchange[2] and the IATI Strategic Plan Results Monitoring Report (2023)[3]—has provided further insights into the data needs of recipient countries and intermediaries.

Table 2 IATI Stakeholder Analysis: Roles, Relationships, and Data Motivations

Actors	Roles in Development	Relationship with IATI	Development Data Motivation
UNDP Headquarter (HQ)	Implementing international organization	Established IATI establisher, continuously advancing IATI standards and implementation[4]	Enhance transparency of aid related activities[5]
UNDP Country Offices (CO)[6]	Implementing international organization (Local level)	Information provider	Utilize IATI data as a supplementary tool to enhance project planning and informed management decisions
Providers of Development Cooperation (bilateral & multilateral donors, dev't banks)	Source of funding	Data users (e.g., transparency portal of Germany)[7]	Tracking budgetary expenditures, ensuring transparency for stakeholders[8]
Partner Countries (aid recipients)[9]	Developing country governments	Data users (national reporting systems, aid coordination systems, e.g., CDFD)	Facilitate informed decision-making and improve coordination with donors and development partners (aid implementers)
Other Users[10] (international organizations, open data service providers, journalists, watchdogs)	Various roles in development cooperation	Data users, participants in the IATI Community Exchange	Data integration, reporting, investigative journalism, academic research, and transparency monitoring

Source: created by authors based on research data

[1] For detailed information regarding the preliminary consultations with UNDP Seoul Policy Center and expert interviews with UNDP officials, please refer to Appendix: Preliminary Consultations and Expert Interviews.
[2] IATI, "IATI Community Exchange 2023," accessed January 10, 2025, https://iatistandard.org/en/events/iati-community-exchange-2023/; International Aid Transparency Initiative, "Members' Assembly & Community Exchange 2024," accessed January 10, 2025, https://iatistandard.org/en/events/members-assembly-community-exchange/.
[3] IATI, "IATI Strategic Plan Results Monitoring Report 2023," 2023, 13, https://cdn.iatistandard.org/prod-iati-website/documents/IATI_2023_monitoring_matrix.pdf.
[4] UNDP Headquarters (HQ), "Expert Interview," interview with Policy Specialist, conducted by Development Futures Lab (DFL), October 31, 2024.
[5] UNDP Tunisia Country Office (Tunisia CO), interview with M&E Specialist and Programme Associate, conducted by Development Futures Lab (DFL), December 16, 2024.
[6] UNDP Tunisia CO, "Expert Interview," 2024.; UNDP Iraq Country Office (Iraq CO), interview with Programme Management Specialist, conducted by Development Futures Lab (DFL), December 9, 2024.
[7] IATI, "Strategic Plan Results Monitoring Report," 7.
[8] UNDP Seoul Policy Center (USPC), "Preliminary Consultation," consultation with Development Cooperation Unit, May-December, 2024.
[9] IATI, "Strategic Plan Results Monitoring Report," 7, 11, 33.
[10] IATI, "Community Exchange (2023, 2024)."

Key Observations on Stakeholder Engagement

Table 2 presents the interplay between actors' roles, their relationship with IATI, and their motivations for using development data. Several key patterns emerge, shedding light on both strengths and gaps in IATI engagement:

Strengths

- **Active Users and Engagement:** Certain stakeholders—particularly partner countries, journalists, and open data service providers—demonstrate higher levels of engagement with IATI data. Their consistent participation, especially in the IATI Community Exchange, suggests that IATI has successfully created value for these user groups, incentivizing them to integrate data into their workflows.

- **Differentiated Motivations Driving Data Utilization**: While transparency is the foundational principle of IATI, different stakeholders translate this principle into practice in diverse ways.
    - Providers of development cooperation focus on financial tracking and accountability.
    - Partner countries prioritize coordination among multiple development actors to inform policy decisions.
    - Other users require intuitive access and visualization tools to conduct investigations or analysis.

Gaps

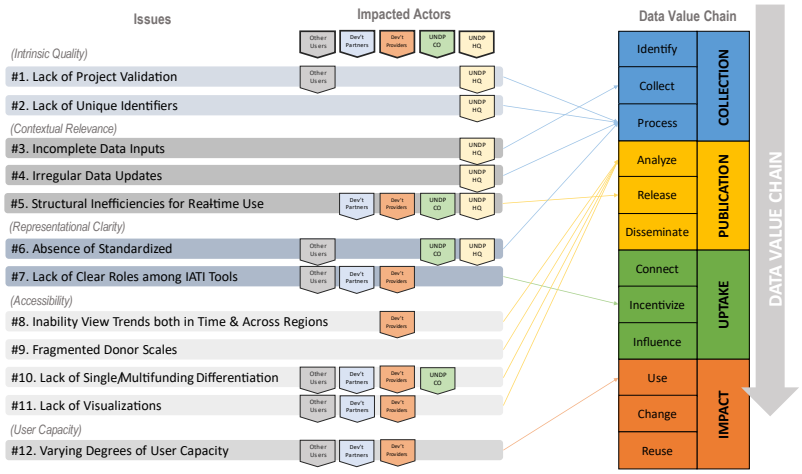
- **Disparity in Participation and Utilization**: While IATI members actively participate in standard-setting (e.g., through the Annual Members' Assembly), their direct operational use of IATI data is limited. Interviews indicate that many implementing agencies still rely on traditional negotiation-based approaches rather than integrating IATI data into their core aid planning processes.

- **Limited Integration into Planning Processes:** Despite its potential, IATI data is underutilized in formal planning. Many implementing organizations rely more on direct engagement and bilateral negotiations than on IATI data. This suggests opportunities to strengthen IATI's relevance in operational planning by making data more actionable and integrated into decision-making frameworks.

These findings underscore the complexities of IATI's integration into development cooperation. While IATI has established itself as a transparency tool, a gap remains between governance participation and practical implementation. Addressing this gap requires a focus on three key areas: (1) enhancing IATI uptake by ensuring implementing organizations actively use its data for planning and decision-making, (2) expanding participation by scaling successful engagement models from partner countries to a broader user base, and (3) tailoring user experiences to accommodate diverse technical capacities and needs.

Strengthening these areas would **solidify IATI's role** in improving aid effectiveness and advancing **DBDM**. This refinement also reshapes the broader landscape of stakeholder challenges, as illustrated in **Figure 3**.

Figure 3 Identified Problems within the Data Value Chain w/Stakeholders



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However, some challenges affect multiple stakeholders, reinforcing the need for systemic improvements:

- **Lack of Single/Multifunding Differentiation (#10):** A critical issue across all major stakeholders is the lack of clear differentiation between single and multifunding structures. This creates a significant risk of double counting, reducing the overall usability and reliability of IATI data. For example, a project receiving multiple funding sources across different countries may be reported inconsistently—some providers may aggregate total funding, while others may report only country-specific allocations. This inconsistency distorts financial tracking, affecting all stakeholders regardless of their specific data needs.

- **Challenges in Analyzing Aid Trends (#8):** The inability to view trends across time and regions disproportionately affects providers of development cooperation, who require historical and comparative analysis to ensure transparency and accountability in their aid portfolios. Without comprehensive data collection and aggregation, donors struggle to track performance, assess funding gaps, and coordinate aid flows. Given the prevalence of aid fragmentation among both bilateral and multilateral donors, an improved data aggregation function is essential to overcoming these barriers.

- **Structural Inefficiencies in Real-Time Use & Limited Data Visualization (#5, #11, #12):** Structural inefficiencies in real-time reporting hinder data accessibility and usability, particularly when information is incomplete or inconsistently formatted at the collection and publication stages. These upstream issues in data processing result in delays in data release, misclassification of projects, and inconsistencies across IATI tools, making real-time analysis difficult. These issues are compounded by limited visualization capabilities, which affect stakeholders—especially donors, policymakers, and development finance institutions—who rely on interactive tools to compare data trends and make informed decisions.

As such, without addressing these inefficiencies upstream, improvements in the latter stages alone will not enhance IATI's usability. Thus, solutions should focus on **structuring and standardizing data at earlier phases** to ensure that visualized outputs reflect reliable, timely, and actionable information for DBDM. These solutions require most efforts by those overseeing IATI's collection and publication phases, being the IATI Secretariat as seen through UNDP HQ.

3. Solutions

3.1 Overview of Existing Interventions

The IATI Secretariat has implemented targeted interventions to enhance data usability, accessibility, and transparency, aiming to address barriers to data adoption and improve stakeholder engagement. These efforts include capacity-building programs, tool enhancements, and governance reforms, which have contributed to better data collection, improved publication, and increased uptake.

One of the embedded interventions within its operations is the **Annual Community Exchange**, which strengthens the collection phase of the DVC. By engaging future users in consultations, IATI refines data granularity and encourages stakeholders to share experiences, discuss challenges, and propose refinements. While this initiative has helped improve data identification, challenges persist in ensuring consistency, accuracy, and standardization at the collection stage, impacting how data is structured and later utilized.

On the other hand, to enhance data publication and accessibility, IATI has improved several data tools that help stakeholders engage more effectively with development data. **D-Portal** serves as a key platform for accessing and analyzing IATI data, offering filters for donors, sectors, and funding sources alongside visualization tools to track funding trends over time. Similarly, the **Country Development Finance Data** (CDFD) tool provides a structured approach to tracking financial flows, allowing users to download structured financial data in Excel format, track donor contributions, and analyze funding trends; organizations such as World Vision UK have successfully used CDFD to analyze sector-based spending trends in Bangladesh and identify Uganda's largest donors. The **Datastore Search Tool**, designed for expert users, offers direct access to raw IATI data in multiple formats (CSV, XML, JSON), for advanced users.

Beyond improving data collection and publication, IATI has worked to increase data uptake and practical application. The integration of IATI data into national development cooperation reports, total resource flow assessments, and medium-term expenditure frameworks reflects a positive step in the uptake phase of the DVC, demonstrating how structured financial data is increasingly being used in policy planning and decision-making in partner countries. Recognizing diverse stakeholder capacity, IATI introduced the **Virtual Training for Civil Society**, a program assisting civil society organizations (CSOs) in better understanding the IATI Standard and its tools. The training, structured into five modules, covers background information on development data and IATI, potential use cases, hands-on training in IATI tools (d-portal, CDFD, Datastore Search), and engagement strategies. The program also includes real-world examples demonstrating how organizations have successfully leveraged IATI data. For instance, Plan International Netherlands used IATI data to identify organizations

working in similar sectors, improving collaboration and efficiency in humanitarian and development projects.

While IATI's existing efforts have supported data collection, publication, and uptake, remaining issues include data inconsistencies, limited interoperability, gaps in visualization tools, and underutilization in decision-making processes. As noted in IATI's 2020-2025 Strategic Plan, without improving data collection, validation, and standardization in earlier stages of the DVC, later-stage solutions will have limited long-term impact. Addressing these challenges will require additional structural, technical, and organizational improvements, which the following section will explore.

3.2. Proposed Solutions

To tackle these early-stage challenges and strengthen DBDM, the team identified a set of solutions aligned with different stages of the DVC. These proposals are structured according to the intervention points within the DVC, progressing in order of complexity. (Please note that an alternative presentation of these solutions can be found in Appendix: List of Proposed Solutions.) By following this approach, more immediate and feasible solutions can be implemented early in the process, while more technically demanding or systemic changes can be developed over time. In other words, by implementing organizational and compliance-driven improvements first, IATI can establish data consistency and reporting accuracy. This creates a solid foundation for long-term innovations, including AI-driven analytics, predictive modeling, and user-adaptive navigation tools, ultimately transforming IATI into a DSS.

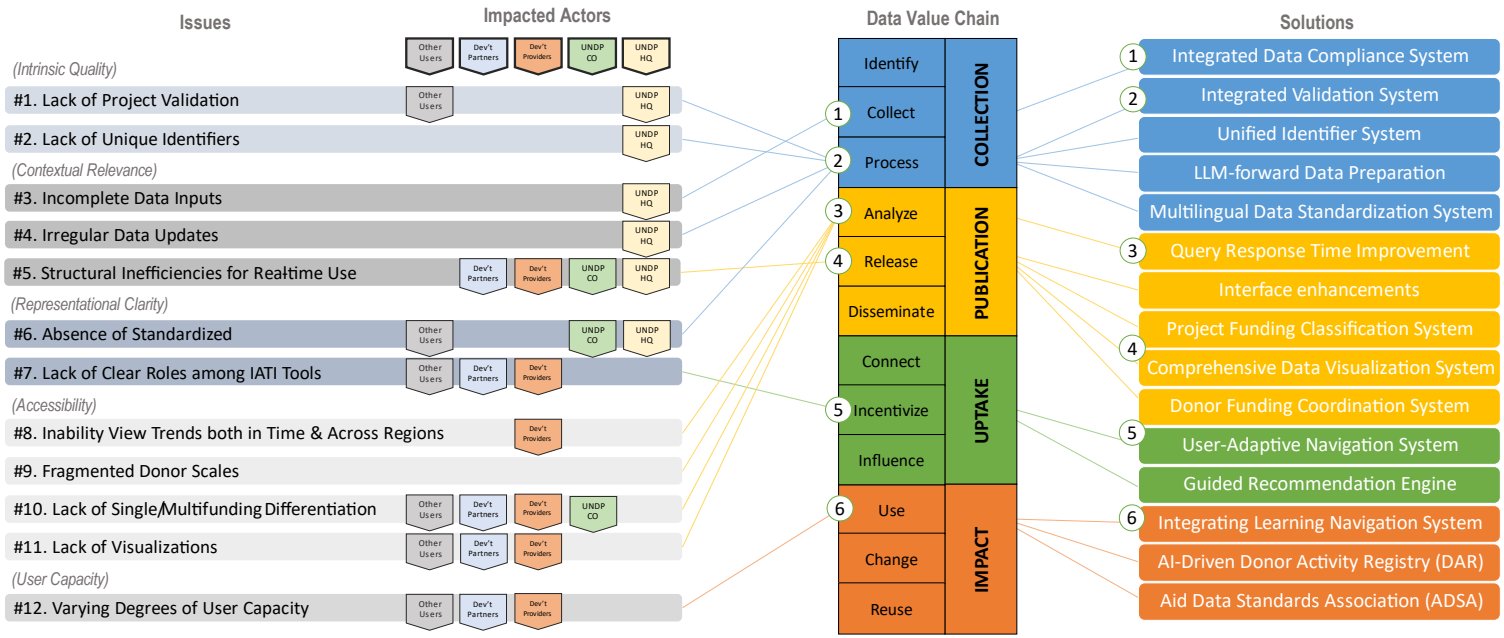
3.2.1. Collection

Many challenges in IATI originate during data collection, where inconsistencies, lack of standardization, and duplicate reporting reduce overall data quality. Strengthening this phase ensures that subsequent analysis and decision-making are built on reliable data.

- **Integrated Data Compliance System:** Data inconsistencies and duplicate reporting stem from fragmented data entry across multiple platforms. This solution introduces a single-entry mechanism that automatically populates multiple platforms (e.g., Quantum), eliminating redundant data input and enforcing mandatory field compliance to standardize reporting. A centralized quality assurance system managed by the IATI Secretariat (UNDP HQ) would oversee compliance, ensuring greater consistency across all reporting entities.

- **Integrated Validation System:** Many datasets contain structural errors and missing information due to limited validation mechanisms. Integrating the IATI Validator into a centralized input system strengthens IATI's data validation framework by introducing a mandatory field compliance system to prevent missing values. Additionally, enhancing the IATI Validator by incorporating detailed quality assessment checks ensures greater accuracy before publication.

Figure 4 DVC with Proposed Solutions per Stage



Source: Created by authors based on research data

- **Unified Identifier System:** Tracking multi-country projects and linked initiatives is difficult due to the absence of standardized unique identifiers. This solution mandates the use of unique project identifiers and enforces schema-based improvements to enhance data traceability, project relationships, and cross-platform integration.

- **LLM-forward Data Preparation:** One of IATI's strengths is the frequent inclusion of project documents. Though often non-trivial, importing project documents into plain text format would improve the quality of searches and lay the foundation for more enhanced searches and analysis employing Large Language Models (LLMs).

- **Multilingual Data Standardization System:** Many non-English datasets contain translation inconsistencies, leading to challenges in global data interoperability. This solution integrates AI-powered real-time translation into IATI's platform, allowing datasets to be seamlessly standardized across multiple languages.

By implementing these structural enhancements, IATI can ensure that collected data is accurate, complete, and interoperable, providing a strong foundation for further analysis and usability.

3.2.2. Publication

Even when high-quality data is collected, poor accessibility, inconsistent classification, and limited visualization options make it difficult for users to extract meaningful insights. Though all of the following suggestions involve interface enhancements, a few concrete improvements are specified.

- **Query Response Time:** Improving the response time to queries on IATI data would reduce time demands on potential users and thereby produce more far reaching application.

- **Interface enhancements:** Many basic inquiries in d-Portal would benefit from having additional filtering options. Specifically, filters should be added for regional and multi-country filtering, like those in CDFD, and for multi-country projects. Users would also benefit from query results and project summaries that identify related projects, which appears to be being developed currently.

- **Project Funding Classification System:** Many projects lack clear funding source labels, making it difficult to distinguish between single-donor and multi-donor initiatives. This solution introduces metadata tagging to classify projects by funding type while also providing an interactive financial breakdown tool, allowing users to sort and analyze project expenditures by contribution size.

- **Comprehensive Data Visualization System:** Users struggle to identify trends and patterns due to limited graphical data representation. This solution expands CDFD visualization capabilities, incorporating interactive time-series charts, heat maps, and regional comparison tools. Additionally, a dual-view interface for d-Portal allows users to toggle between tabular data and dynamic visualizations, improving usability.

- **Donor Funding Coordination System:** Redundant funding and overlapping project initiatives continue to affect aid efficiency. This solution integrates an AI-powered Donor Activity Registry (DAR) that automatically detects overlaps in funding initiatives based on geography, beneficiaries, and intervention types. A real-time funding dashboard

enhances coordination by alerting program officers when new funding overlaps with existing initiatives, reducing duplication risks.

By improving data standardization, classification, and visualization, these solutions empower users to extract actionable insights and enhance funding coordination.

3.2.3. Uptake

Ensuring that stakeholders effectively engage with and utilize IATI's data tools is critical to maximizing impact. Many users lack the technical expertise to navigate the platform efficiently, leading to underutilization of available resources.

- **User-Adaptive Navigation System (ecosystem focused):** New users often struggle to find the most relevant IATI tools for their needs, leading to inefficiencies in data retrieval. This solution profiles users based on their technical skills, data needs, and usage patterns, directing them to the most appropriate tools (e.g., d-Portal for beginners, CDFD for intermediate users…) and perhaps suggesting use strategies and skill appropriate tutorials. This ensures that users interact with datasets in a way that aligns with their expertise level. It also offers the additional benefit of gathering information about IATI users' backgrounds and goals, which could be useful for future evolution.

- **Guided Recommendation Engine (tool focused):** Users without prior experience in IATI data analysis often struggle to navigate the platform. This solution automates tool recommendations based on user profiles, for example, highlighting the next button to click, providing a structured entry point for engaging with IATI datasets. This reduces learning barriers and improves platform adoption.

By personalizing the user experience and automating navigation, these solutions help users interact with data more effectively, increasing engagement and uptake.

3.2.4. Impact

The final stage of the DVC focuses on ensuring that IATI's data drives better funding decisions and project coordination. While data is accessible, many decision-makers struggle to translate insights into action.

- **Integrating Learning Navigation System:** Users often struggle to transition from data analysis to strategic decision-making. This system acts as a unified control center, embedding learning resources and interactive guidance within the platform. Users can access expert guidance, tutorials, and contextual explanations, ensuring that they more effectively apply data insights in their decision-making processes.

- **AI-Driven Donor Activity Registry (DAR):** Many funding allocations fail to account for existing investments, leading to inefficiencies in aid distribution. This solution automates the categorization of aid flows, helping donors identify redundancies and funding gaps in real time. By integrating with existing funding dashboards, this tool ensures that new project proposals align with current development needs.

- **Aid Data Standards Association (ADSA):** Improving uptake requires the unflagging exploration of new applications and challenges. The Annual Community Exchange is a dynamic forum for sharing experiences employing IATI data, introducing new

applications of IATI data, discussing improvements, and so on. Upgrading the Exchange to a formal standards setting association establishes and maintains a global standard for defining and organizing development data, improves the initial input of data, and facilitates the integration of IATI tools into domestic data reporting and analysis systems.

By introducing automated funding analysis and embedded learning tools, these solutions help organizations leverage IATI data for more informed, strategic decision-making.

As such, a tiered solution approach enables IATI to prioritize foundational improvements while gradually implementing technologically advanced solutions that will transform data usability and decision-making. By first focusing on organizational and compliance-driven enhancements, IATI can immediately improve data consistency and reporting accuracy, setting the stage for long-term AI-driven innovations that will solidify its role as a DSS.

Table 3 Overview of Solutions per DVC Phase

Phase	Solution	Description	Complexity
Collection	Integrated Data Compliance System	Standardizes data entry across platforms, ensuring consistency and reducing redundancy.	Low
	Integrated Validation System	Enhances IATI's Validator to enforce data quality and prevent missing values.	Low
	Unified Identifier System	Introduces unique project identifiers to improve data traceability.	Medium
	LLM-forward Data Preparation	Converts project documents to plain text to improve searchability and analysis.	Medium
	Multilingual Data Standardization System	Uses AI-powered translation to ensure data interoperability across languages.	High
Publication	Query Response Time Improvement	Optimizes platform performance to reduce response times for user queries.	Low
	Interface enhancements	Adds filtering and identifies related projects	Low
	Project Funding Classification System	Adds metadata tagging and financial breakdown tools for project funding clarity.	Medium
	Comprehensive Data Visualization System	Expands visualization tools, including interactive charts and regional comparisons.	Medium
	Donor Funding Coordination System	Uses AI to detect funding overlaps and improve aid coordination.	High
Uptake	User-Adaptive Navigation System	Directs users to the most relevant tools based on their skill level and needs.	Medium
	Guided Recommendation Engine	Automates tool recommendations to improve user onboarding.	Medium
Impact	Integrating Learning Navigation System	Embeds guidance and tutorials within the platform to enhance data application.	Medium
	AI-Driven Donor Activity Registry (DAR)	Automates aid flow categorization to reduce redundancy and improve funding efficiency.	High
	Aid Data Standards Association (ADSA)	Establishes a forum for standard-setting and improving IATI data applications.	High

Source: Created by authors based on research data

4. Technical Requirements

4.1. Summary

As IATI moves toward a more advanced Decision Support System (DSS), integrating AI-driven tools will be essential to enhancing data accuracy, aid coordination, and funding efficiency. One such tool is the AI-Driven Donor Activity Registry (DAR), which aims to improve donor coordination by identifying funding overlaps, redundancies, and gaps in real time.

This section outlines the technical requirements for DAR as a **representative example** of the more complex AI-driven solutions being proposed. The development of this tool will demonstrate how AI can optimize decision-making in the international aid sector, providing stakeholders with automated insights into funding flows to ensure that resources are allocated strategically and efficiently.

4.2. Assumptions, Risks, Dependencies

Assumptions:

- IATI datasets contain sufficiently structured metadata on funding allocations, recipient projects, and donor contributions to enable AI-driven analysis.
- The tool can be trained using historical funding data to establish patterns and detect overlaps accurately.
- The AI system will integrate smoothly with IATI's existing funding dashboards, providing real-time insights without requiring major architectural changes.
- Stakeholders will have access to the tool, enabling actionable decision-making.

Risks:

- **Data Inconsistencies**: If metadata is incomplete or poorly structured, the AI model may produce false positives or miss critical funding overlaps.
- **Scalability Challenges**: AI models require constant updates and retraining as new funding patterns emerge, which may demand ongoing computational resources and human oversight.
- **Adoption Resistance**: Stakeholders may be hesitant to trust AI-generated insights, requiring additional training and transparency in model recommendations.

Dependencies:

- **Access to Comprehensive IATI Data**: The AI tool relies on well-maintained funding records, project descriptions, and financial transactions from the IATI database.
- **Integration with IATI Dashboards**: The tool must be compatible with existing donor coordination platforms and financial tracking dashboards used within IATI.
- **Computational Infrastructure**: The tool requires server capacity for AI model training, API integration for real-time data analysis, and front-end visualization tools for displaying insights to users.

4.3. Functional Requirements

The AI-Driven Donor Activity Registry (DAR) will function as an automated system that continuously scans IATI's funding datasets, detecting patterns and highlighting funding overlaps or gaps in real time. Key functional components include:

1. AI-Powered Funding Categorization

- Uses Natural Language Processing (NLP) and machine learning to automatically classify and categorize funding allocations based on project descriptions, financial contributions, and geographic scope.
- Standardizes funding sources, project objectives, and aid distribution categories, improving data uniformity across IATI.

2. Overlap & Gap Detection Engine

- Compares newly reported funding allocations against historical records to detect overlapping aid efforts and funding duplications.
- Identifies underfunded sectors, regions, or projects, flagging potential funding gaps where additional resources may be needed.
- Uses predictive modeling to suggest where future funding allocations may be at risk of redundancy based on past trends.

3. Real-Time Alerts & Dashboard Integration

- Generates automated alerts for program officers and donors when new funding proposals overlap with existing initiatives.
- Integrates with IATI's existing funding dashboards, allowing users to visually track funding flows, duplication risks, and gap areas.
- Provides interactive filtering options, enabling users to view funding overlaps by geography, donor agency, project type, or sector focus.

4. User Feedback and AI Model Refinement

- Allows manual user validation of AI-generated insights, enabling donors and project managers to confirm, refine, or override system recommendations.
- Incorporates human-in-the-loop learning, where the AI system improves based on user feedback and continuous data input updates.

4.4. Expected Outcomes

The AI-Driven Donor Activity Registry (DAR) will bring significant improvements to funding efficiency, donor coordination, and strategic aid allocation.

- **More Efficient Use of Development Funds**: By detecting funding overlaps in real time, this system will reduce redundancies, ensuring that resources are optimally allocated to the areas that need them most.
- **Improved Transparency and Accountability**: By providing clear, AI-generated insights into funding flows, the tool will enhance trust and transparency between donors, recipient governments, and civil society organizations.
- **Data-Based Decision-Making**: The integration of AI-powered analytics into IATI dashboards will enable stakeholders to make more informed funding decisions, improving the effectiveness of aid distribution.

- **Scalability for Future AI Enhancements**: The successful implementation of this system lays the foundation for further AI-driven innovations in predictive funding modeling, risk analysis, and automated compliance tracking within IATI.

5. Conclusion

This report has explored solutions to enhance data-based decision-making (DBDM) in development cooperation through IATI, emphasizing ways to strengthen its role as an effective decision-support system (DSS). By applying the Data Value Chain (DVC) framework, the analysis has underscored the importance of improving data quality at the collection and publication stages to maximize the utility of IATI for real-time decision-making. While IATI has advanced transparency and accessibility, strategic enhancements—such as refining data standards, promoting interoperability, and fostering analytical capacities—can further bridge the gap between reporting and actionable insights.

To address this, the report proposed a tiered set of solutions targeting organizational, compliance-driven, and AI-enhanced improvements across the DVC. These include structural enhancements to data validation and standardization, as well as advanced AI-driven innovations such as the AI-powered Donor Activity Registry (DAR) for automated funding overlap detection and metadata validation. By strengthening the foundation of IATI's data architecture, these solutions ensure that decision-makers can rely on accurate, well-structured, and actionable information.

This approach also considers stakeholder differentiation, recognizing the varying capacities of donors, implementing agencies, and recipient governments to engage with and utilize IATI data. By designing solutions that balance automation with usability, the proposed framework ensures that both high-capacity users with advanced analytical capabilities and lower-capacity stakeholders with limited technical resources can effectively leverage the platform.

Enhancing data integrity at the input stage improves usability across the entire DVC, empowering stakeholders to make more informed, strategic decisions based on reliable data. Furthermore, integrating AI validation and analytics into IATI's existing infrastructure would transform it from a passive data repository into an active, decision-oriented platform, reinforcing its role as a DSS that drives smarter, more effective aid distribution.

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Appendix: Preliminary Consultations and Expert Interviews

Table A1: Preliminary Consultations

Type of Engagement	Organization	Timeframe
Preliminary Consultations	Development Cooperation Unit, UNDP Seoul Policy Center (USPC)	May-December 2024

Table A2: Expert Interviews

Name and Position	Organization	Interview Date
Abdul Riza, Policy Specialist, PPM and Transparency	UNDP Headquarters	31 October 2024
Farooq Al-Wakeel, Programme Management Specialist	UNDP Iraq Country Office	9 December 2024
Faiza Elleuch, M&E Specialist / Sellema Houji, Programme Associate	UNDP Tunisia Country Office	16 December 2024

Note: Multiple preliminary consultations were conducted with UNDP Seoul Policy Center staff throughout the research period to inform the direction and methodology of this report.

Table A3: List of Proposed Solutions

1) Interface	
a) Less demanding	• Enable regional and multi-country filtering (d-Portal) • Add filtering for multi-country projects (d-Portal) • Better explain how tools relate to each other • Add toolbar to generate alternative visualization formats (e.g, pie chart) • Links to expert deep dive sessions on main page

b) More demanding	• Introduce trend analysis tools
	• Introduce improved visualization options
	• Develop "data guide" (via AI or decision tree)
	  ○ Avoid the need to integrate into a single interface/tool
	  ○ Guide (new) users to appropriate tool (and strategies)
	  ○ Collect information on user base

2) Technical	
a) Less demanding	• Import project documents to text for stronger search capabilities • Improve API response time

b) More demanding	• Centralize data input (Global AIMS)
	  ○ Enforce validation
	  ○ Enforce unique identifiers
	  ○ Populate other data tools (like Quantum does)
	  ○ Substitute for user DBs as a digital public good
	• Integrate AI-enhanced search function
	• Flag inconsistencies and inform data source
	• Ensure complete and accurate accounting

3) Schema-related	
a) Less demanding	• Increase granularity for multi-country projects • Add a way to identify connected projects • Improve donor categories

b) More demanding	• Develop deeper understanding of the relationship between IATI standard and user standards
	• Predictive AId
	  ○ Integrate access to other data sets
	  ○ Develop AI-informed tools for predicting aid flows

4) Organizational	
a) Less demanding	• Develop robust standards association (like ISO, perhaps from Members' Assembly)