## Data Flow Maps

# Document: High-level data flow diagrams for critical processes, showing data movement between key internal and external systems

- **Purpose:** To visually represent and document how critical data flows through the World Bank's systems and business processes. These **Data Flow Diagrams (DFDs)** illustrate the journey of data from its point of origin, through various processing steps and storage locations, to its final destination(s), including interactions with external entities. DFDs are valuable tools for understanding data handling practices, identifying potential security risks or inefficiencies, and ensuring compliance with data governance and regulatory requirements.
- **Methodology:** The DFDs presented in this section primarily use the **Gane and Sarson** notation, which is widely understood. Key symbols include:
  - **Rectangles with rounded corners:** Represent processes or transformations performed on data.
  - **Rectangles:** Represent external entities (sources or sinks of data outside the system being diagrammed).
  - **Open-ended rectangles (or parallel lines):** Represent data stores (e.g., databases, files where data is held).
  - **Arrows:** Represent data flows, indicating the direction of data movement and labeled with the type of data being moved.

The DFDs focus on **Level 0 (Context Diagram)** and **Level 1 DFDs** for selected critical business processes to provide a clear yet sufficiently detailed overview.

• Scope of Data Flow Diagrams: This document will provide DFDs for a selection of 3-5 critical WDB business processes. For the purpose of this simulation, these might include:

1. **International Fund Transfer Process:** Tracking a payment instruction from initiation to settlement.

2. **Client Loan Application and Approval Process:** Mapping the flow of applicant data and decision-making.

3. **Economic Data Collection and Analysis Process:** Illustrating how raw economic data is ingested, processed, and used to generate reports.

- 4. (Optional) Employee Onboarding Process: Showing the flow of new employee PII.
  - Structure for Each Data Flow Diagram: For each selected critical business process, the following will be provided:

- Process Name and Brief Description.
- **Context Diagram (Level 0):** This diagram shows the entire business process as a single process bubble. It identifies the key external entities that interact with the process and the major data flows entering and exiting the process.
- Level 1 DFD: This diagram "explodes" the single process from the Level 0 diagram into its main sub-processes (typically 3-7 sub-processes). It shows the data flows between these sub-processes, interactions with data stores (databases, files), and data flows to/from the external entities identified in the Context Diagram.
- Key Components Identified in the DFDs:
  - External Entities: Examples for WDB could include: "Client,"
    "Correspondent Bank," "Regulatory Authority," "SWIFT Network,"
    "External Data Provider," "Employee," "Applicant."
  - Processes: Examples include: "Receive Loan Application," "Verify Client Identity," "Assess Credit Risk," "Approve/Reject Loan," "Initiate Fund Transfer," "Validate Payment Instruction," "Screen for Sanctions," "Generate Economic Report," "Store Transaction Record."
  - Data Stores: Examples include: "Client Database," "Loan Application File," "Transaction Log," "Risk Assessment Database," "Economic Statistics Database," "Employee HR System."
  - Data Flows: Labeled arrows indicating the specific data moving, e.g., "Loan Application Form," "Credit Score Report," "Payment Instruction Details," "Validated Economic Data Set," "Transaction Confirmation."
- **Narrative Description:** A brief textual explanation accompanying each DFD, clarifying the process steps and the significance of the data flows depicted.
- Security and Compliance Considerations: For each DFD, a short note will highlight key points in the data flow where sensitive data (as per Information Classification Policy A.5) is created, processed, transmitted, or stored. This will also reference any specific security controls (e.g., encryption, access controls) or compliance requirements (e.g., GDPR-analogous data handling for PII) relevant to that flow. This linkage is crucial for using DFDs as a tool for security analysis and demonstrating due diligence.
- Example DFD Snippet (Conceptual Full diagrams would be graphical):

### Process: International Fund Transfer

- Context Diagram (Level 0) Narrative: The "International Fund Transfer Process" (single process bubble) receives "Payment Instruction" from an "Initiating Client" (external entity) and "FX Rates" from an "FX Rate Provider" (external entity). It sends "Transaction Confirmation" back to the "Initiating Client," "Payment Message" to the "SWIFT Network" (external entity), and "Settlement Notification" to a "Correspondent Bank" (external entity). It also logs data to an internal "Transaction Audit Log" (data store, though often shown implicitly at L0 or explicitly at L1).
- Level 1 DFD Narrative Snippet for a Sub-Process: One sub-process within the Level 1 DFD might be "Validate and Screen Payment." This sub-process receives "Raw Payment Instruction" (data flow) from an earlier sub-process like "Receive Payment Request." It accesses a "Sanctions List Database" (data store) and a "Client Account Database" (data store). It outputs "Validated & Screened Payment Instruction" (data flow) to the next sub-process (e.g., "Execute Payment Leg") or "Rejected Payment Notification" (data flow) back to an error handling process or the client.

The visual DFDs themselves would be graphical representations following the Gane and Sarson notation.

By mapping these critical data flows, WDB gains enhanced visibility into how its most important information assets are handled. This understanding is fundamental for identifying potential vulnerabilities, ensuring data integrity, protecting data confidentiality, and meeting complex regulatory obligations related to data governance and protection.

### Summary of Key Data Flows (Illustrative Sample)

This table provides a summarized, textual representation of selected critical data flows that would be detailed in the graphical DFDs.

Data Flow ID	DFD Reference (Process Name & Level)	Data Flow Name	Source (Process/Entity)	Destination (Process/Entity/Data Store)	Key Data Elements Transmitted	Classification (of Data)	Transmission Security Measures (Example)
DF001- IFT	Intl Fund Transfer - L1	Validated Payment Instruction	Process: Validate & Enrich Pymt	Process: Authorize Payment	Beneficiary Account, Amount, Currency, Value Date, Sender Details	L3 - Restricted	Internal Encrypted Channel

DF002- IFT	Intl Fund Transfer - L1	SWIFT MT103 Message	Process: Format & Send to SWIFT	Entity: SWIFT Network	Full payment details formatted for SWIFT	L3 - Restricted	SWIFT Network Security Protocols
DF003- LAP	Loan Application - L0	Client Loan Application Data	Entity: Loan Applicant	Process: Loan Application & Approval	Applicant PII, Financial Statements, Loan Amount, Purpose	L3 - Restricted	Encrypted Web Session (TLS 1.3)
DF004- LAP	Loan Application - L1	Credit Bureau Report	Entity: Credit Bureau	Process: Assess Creditworthiness	Credit Score, Debt History, Public Records	L3 - Restricted	Secure API with Mutual Authentication
DF005- EDC	Economic Data Collection - L1	Raw National Statistical Data	Entity: Member Country Stats Office	Process: Ingest & Validate Data	Economic indicators, demographic data, trade figures	L2 - Confidential	SFTP with PGP Encryption
DF006- EDC	Economic Data Collection - L1	Analyzed Economic Forecast	Process: Generate Forecast Report	Data Store: Published Reports Archive	Aggregated forecasts, charts, narrative analysis (intended for public release after approval)	L1 - Public (once published)	N/A (for storage of public data)

#### Example for DF001-IFT:



for DF003-LAP)

#### Example for DF005-EDC:

