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# **Challenges in Transforming Exploration Data to GIS**

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# Agenda

- Problem Statement
- Data Transformation Challenges
- Mitigation of Challenges
- Approach
- Our Solution- DatabriX
- CYIENT

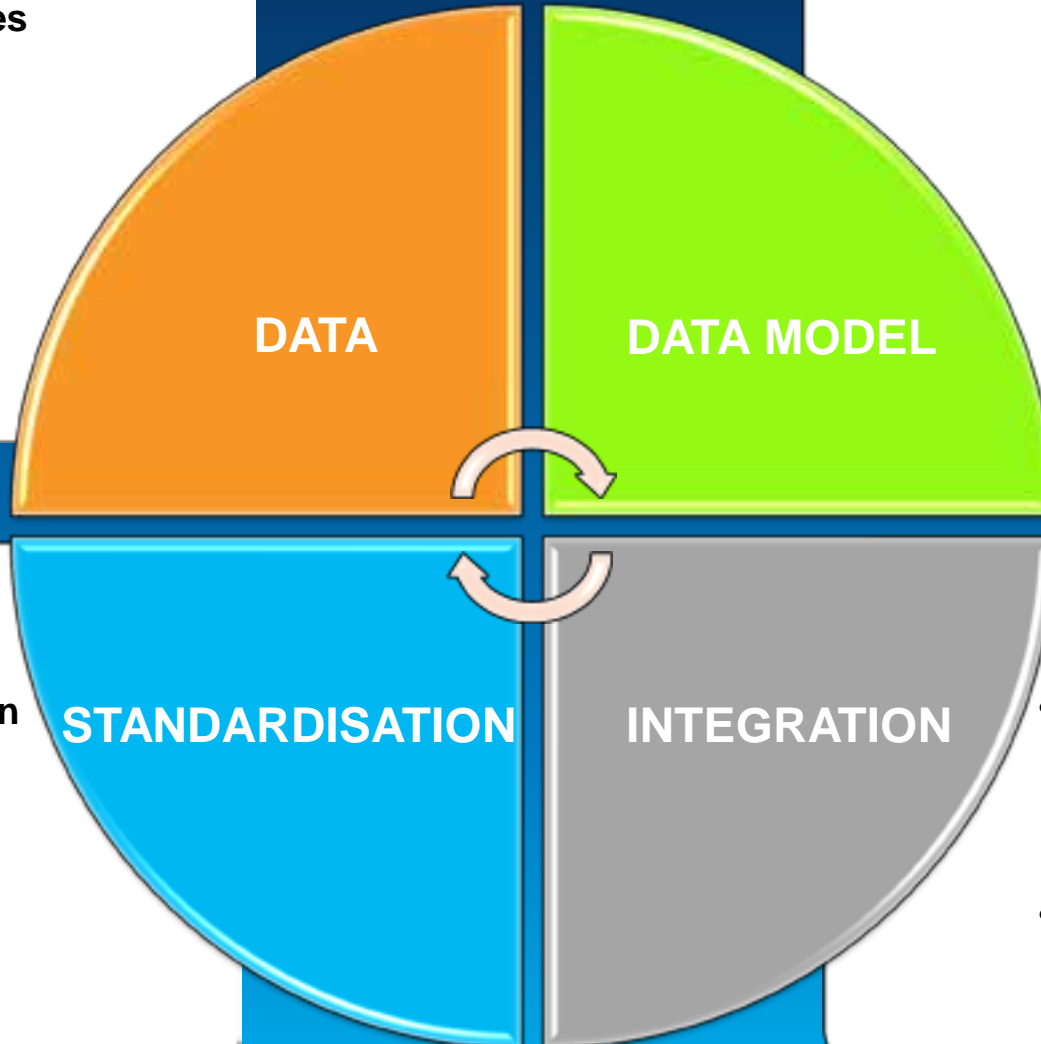
# Problem Statement

- § The structured, un-structured and semi-structured data assets in multiple file formats are generated during Exploration stage of Mining lifecycle.
- § Involves high-end domain experts, well-defined processes and proven technologies.
- § Challenges in categorizing, classifying and extracting Geo-scientific data
- § Tedious to transform, de-duplicate, cleanse and standardize the domain rich data.
- § Needs capability to model the database and support extensibility.

# Data Transformation Challenges

- **Multiple File Formats**
- **Obsolete File Types**
- **Data Types**
  - Structured
  - Un-structured
  - Semi-structured
- **On-the-Field and Off-the-Field Data**

- **Data Schema**
- **Constraints**
  - Data Types
  - Lengths and Ranges
  - Data Lookup



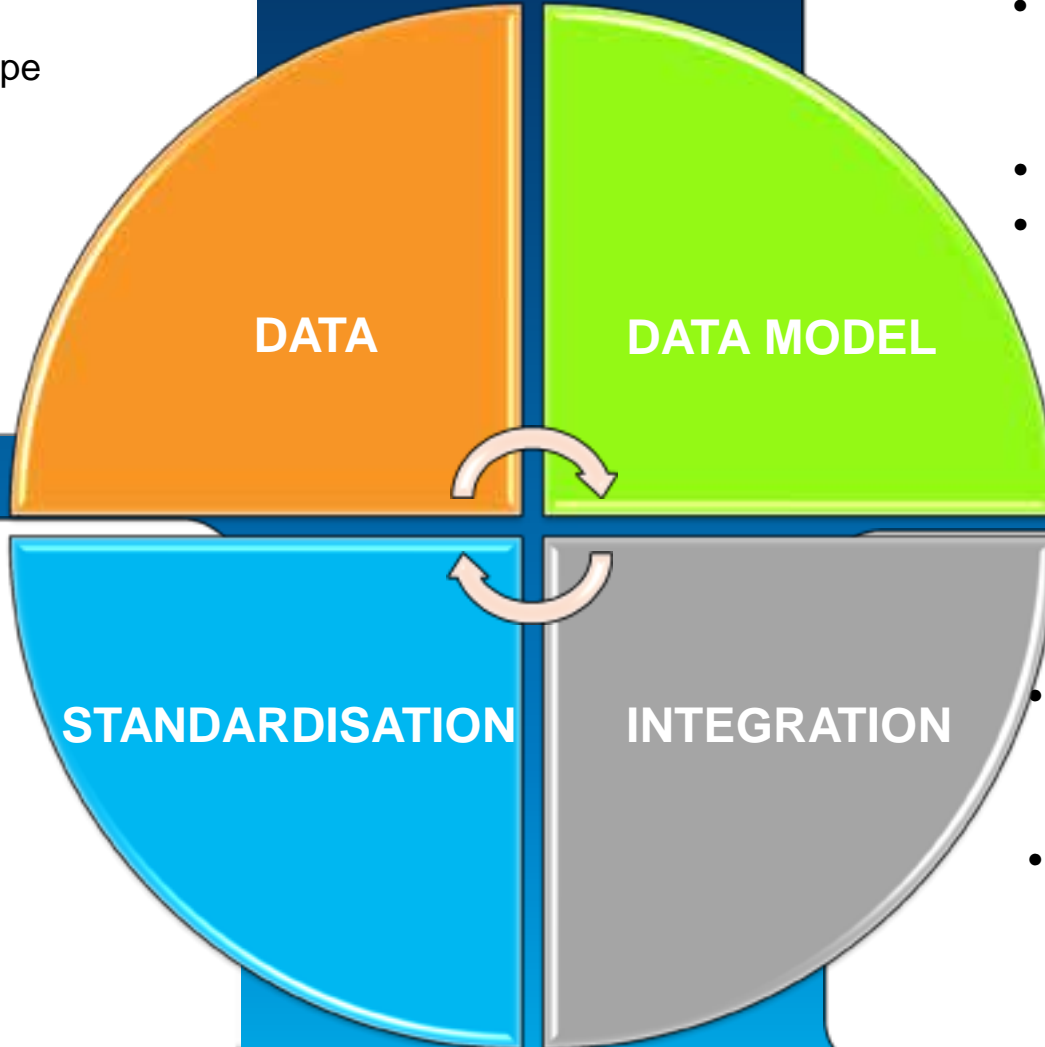
- **File De-duplication**
- **Record De-duplication**
- **Data Cleansing**
  - Business Rules
  - Manual

- **Transformation**
  - ETL
  - Data Enhancements
- **GIS Integration**
  - Spatial Reference
  - GIS Data mode

# Mitigation of Challenges

- **Unified File Format**
- **Data Cataloging**
- **Data Profiling**
  - In-Scope/Out-Scope Classification
  - Categorization
  - Field Mapping
- **Quality Scorecard**
- **Auditing**

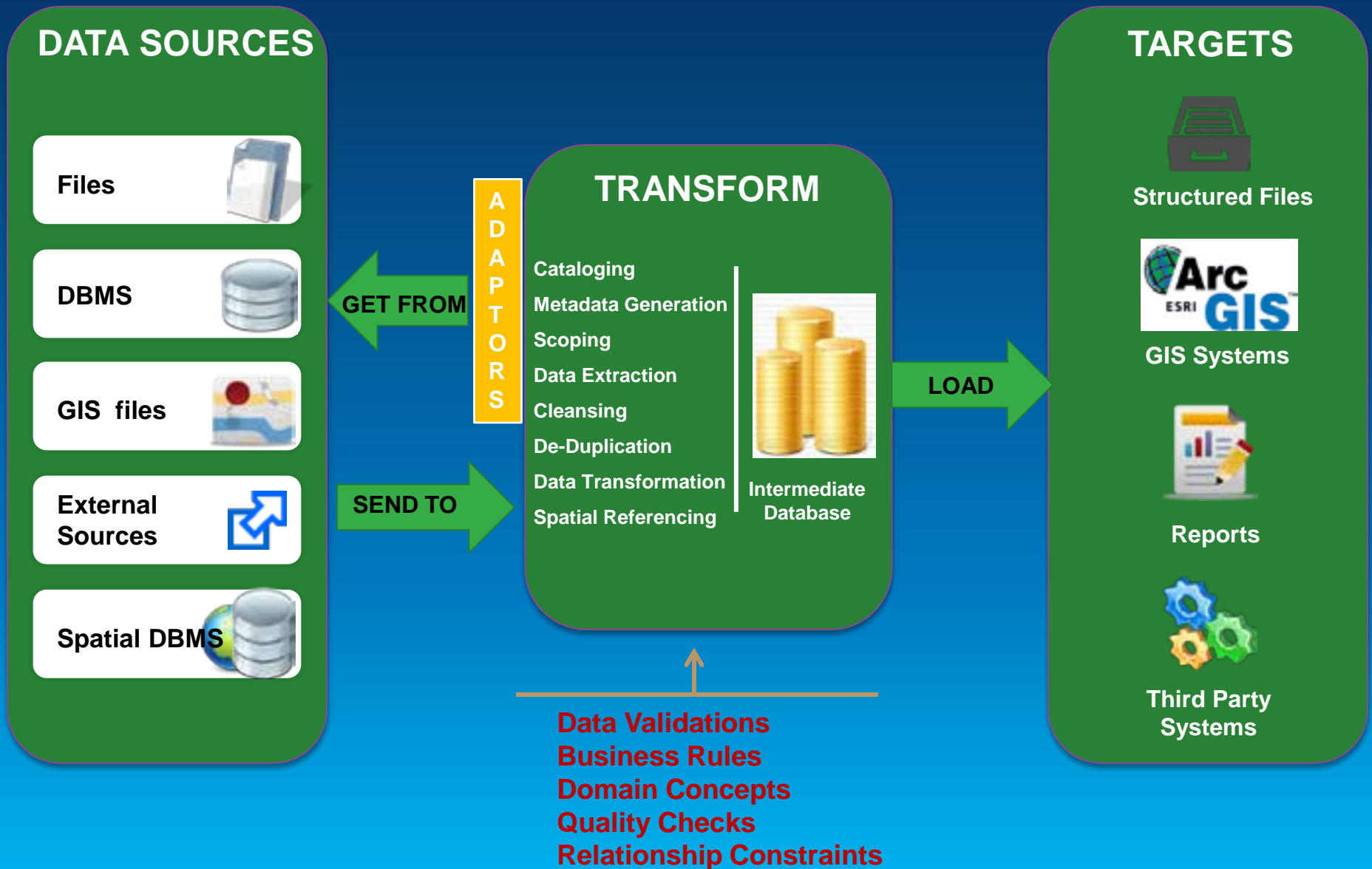
- **Intermediate database**
- **Data Schema**
  - Base Tables
  - Virtual Tables
- **Lookup Dictionary**
- **Business Rules Repository**



- **File Hash Code**
- **Record Hash Code**
  - Exact Records
  - Near Records
- **Data Cleansing**
  - Automated using rules
  - Manual

- **Transformation**
  - Populating Sequence
  - Data Enhancements
- **GIS Integration**
  - Spatial Reference
  - GIS Data model

# Approach



# Our Solution - DatabriX





# DatabriX – User Interface

The screenshot displays the DatabriX software interface. At the top, there are menu options: 'Data Management', 'Data Optimization', 'Quality Assurance', 'Reports', 'Administration', and 'Help'. The 'File Path' is set to 'U:\172.16.245.173\Shared\Test Demo\DrilSam.xlsx'. Below this, there are sections for 'Scoping' (In-Scope/Out-Scope), 'Classification' (with checkboxes for CRILLCOLLAK, DRILLSAMPLE, SAMPLEASSAY, SURFACESAMPLE\_NO\_PROJECT, SAMPLEPHYSICAL\_PROP, SAMPLEASSAY\_NO\_BATCH, SAMPLEASSAYCALCULATED, PETROGRAPHICASSAY\_NO\_BATCH, and SEPARATEASSAY\_CALCULATED), 'Data Preparation' (Merge Columns, Add Blank), and 'Range Extraction' (Column Range: R1C1:R1C11, Data Range: R2C1:R74C11).

The main window shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Prospect_Code	Company	Sheet_Number	Hole_ID	Data_Type	From_Depth	To_Depth	North	East	RL	Drilling_Type				
2	DG	PAN	8057,8157	DGR1	0	47,000	50800	76000			REVC				
3	DG	PAN	8057,8157	DGR1		47,000	50,000	50800	76000		REVC				
4	DG	PAN	8057,8157	DGR1		50,000	53,000	50800	76000		REVC				
5	DG	PAN	8057,8157	DGR1		53,000	56,000	50800	76000		REVC				
6	DG	PAN	8057,8157	DGR1		56,000	57,000	50800	76000		REVC				
7	DG	PAN	8057,8157	DGR1		57,000	58,000	50800	76000		REVC				
8	DG	PAN	8057,8157	DGR1		58,000	59,000	50800	76000		REVC				
9	DG	PAN	8057,8157	DGR1		59,000	60,000	50800	76000		REVC				
10	DG	PAN	8057,8157	DGR2		0,000	1,000	50800	76800		REVC				
11	DG	PAN	8057,8157	DGR2		1,000	4,000	50800	76800		REVC				
12	DG	PAN	8057,8157	DGR2		4,000	7,000	50800	76800		REVC				
13	DG	PAN	8057,8157	DGR2		7,000	10,000	50800	76800		REVC				
14	DG	PAN	8057,8157	DGR2		10,000	13,000	50800	76800		REVC				
15	DG	PAN	8057,8157	DGR2		13,000	14,000	50800	76800		REVC				

At the bottom of the interface, there are buttons for 'Add QRS', 'Skip', and 'Next'.



# DatabriX – User Interface



The screenshot displays the DatabriX user interface with the following components:

- File Path:** \\172.16.245.173\Shared\Tex\Demo\Output\DrillSam.xlsx
- Classification:**
  - DRILLCOLLAR
  - DRILLSAMPLE
  - SAMPLESSAY
  - SURFACESAMPLE\_NO\_PROJECT
  - SAMPLE@PHYSICAL\_PROP
  - SAMPLE@SAY\_NO\_BATCH
  - SAMPLE@SAY@CALCINATED
  - RETROGRAPHICS@SAY\_NO\_BATCH
  - SEPARATE@SAY\_CALCULATED
- Range Extraction:**
  - Column Range: R1C1:R1C11
  - Data Range: R2C1:R74C11
- Field Mapping Table:**

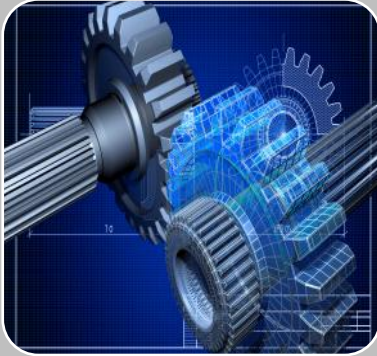
Source Column Name	Conceptual Field Name	Is Completed
Prospect_Code	PROJECT_CODE	<input type="checkbox"/>
Company	COMPANY	<input type="checkbox"/>
Sheet_Number	Out_Scope	<input type="checkbox"/>
Hole_ID	HOLE_ID	<input type="checkbox"/>
Data_Type	Out_Scope	<input type="checkbox"/>
From_Depth	DEPTH_FROM	<input type="checkbox"/>
To_Depth	DEPTH_TO	<input type="checkbox"/>
North	NORTHING	<input type="checkbox"/>
East	EASTING	<input type="checkbox"/>
Drilling_Type	DRILLHOLE_TYPE	<input type="checkbox"/>
Grid	GRID	<input checked="" type="checkbox"/>

Buttons at the bottom include: Add GIS, Skip, Back, Next.

# Team Behind

Technologist	Contact	Persona
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## Service Portfolio and Industry Focus



**Product  
Engineering**



**Process  
Engineering**



**Data  
Transformation**



**Network &  
Operations**

**Energy & Natural Resource (Oil & Gas, Mining)**

**Utilities**

**Aerospace & Defense**

**Transport &  
Navigation**

**Communications**

**Semiconductor,  
Consumer & Medical**

**Content & Geospatial  
Providers**

**Heavy Equipment**

**Rail**

## Data Transformation Group



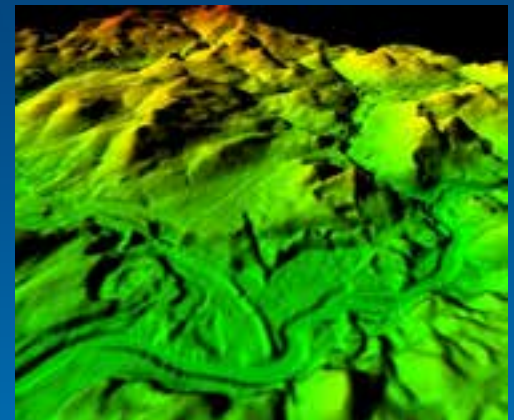
### Transport & Navigation

- Navigational Data Mapping
- Navigational Database Generation
- GIS
- Location Based Services



### Energy & Natural Resources

- Geoscientific Services
- Geospatial Services
- Data Management Services



### Content & Geospatial Providers

- Photogrammetry
- Enterprise GIS
- LiDAR
- Remote Sensing

# CYIENT

Extensive experience across a diversified client base

20+

Years

12

Industries

290+

Clients

26

Fortune 500 Clients

# CYIENT

Trusted relationships with our clients  
helped us build a global company



# Thank You