

**STRATEGY 7**  
CORPORATION

# **Data Migration & Transformation Solutions Services Overview**

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# Introduction

Data migration is necessary when an organization decides to use a new computing system or database management system that is incompatible with the current system.

- Architecture Re-engineering
  - Legacy Application
  - Database
  - Platform
  
- Systems Consolidation
  
- Data Acquisition
  
- Data Integration
  
- Database Technology

# Methodology - Introduction

A methodical and disciplined approach is required to ensure a successful data migration.

## Migration Project Planning

- Determine data scope
- Create dedicated migration project plan
- Set milestones and deliverables
- Allocate committed resources
- Coordinate with development plan
- Test Planning

## Design, develop, test & implement

- Develop migration & load strategy
- Code and test migration programs
- Conduct system level testing
- Support user acceptance testing
- Perform test migrations
- Develop production execution plan

## Discovery, analysis & requirements

- Validate data sources
- Determine field usage and values
- Analyze data & business rules
- Populate metadata repository
- Assess data quality and integrity
- Develop data mapping requirements

# Methodology

Migration and Transformation Services is based on our six-step data migration methodology.

Discovery, Analysis & Requirements

Design, Develop, Test & Implement

Issue Management, Risk Assessment, Quality Assurance and Change Control

Implementation Planning

## Phase 1 Analyze

- Gather system and business rules by domain
- Gather data-metrics by source
- Populate metadata repository

## Phase 2 Map

- Data mapping
- Integrity analysis
- Develop detailed extract paths
- Develop detailed transformations
- Determine validation rules
- Create business requirements document

## Phase 3 Design (High Level)

- Develop migration strategy
- Identify software configuration
- Develop testing strategies
- Develop quality assurance strategy
- Develop certification strategy

## Phase 4 Design (Detail)

- Create detailed migration blueprint
- Publish programming standards
- Develop program specifications
- Performance planning and benchmarks
- Design base functions: exception handling, logging, etc.

## Phase 5 Construct

- Build base functions
- Build migration engine
- Unit test

## Phase 6 Test & Deploy

- Execute test plans: system, E2E, UAT, volume
- Execute simulated migrations
- Enhance transformation rules

# Methodology (cont'd)

Issue mgmt., risk assessment, change control, QA, implementation planning

Discovery, Analysis, Requirements		Design, Develop, Test, Implement			
Step 1 Analyze	Step 2 Map	Step 3 Design (Strategic)	Step 4 Design (Detailed)	Step 5 Construct	Step 6 Test and Deploy
<ul style="list-style-type: none"> <li>→ Gather system and business rules by domain</li> <li>→ Gather data-metrics by source</li> <li>→ Populate metadata repository</li> </ul>	<ul style="list-style-type: none"> <li>→ Data mapping</li> <li>→ Integrity analysis</li> <li>→ Develop detailed extract paths</li> <li>→ Develop detailed transformations</li> <li>→ Determine validation rules</li> <li>→ Create business requirements document</li> </ul>	<ul style="list-style-type: none"> <li>→ Develop migration strategy</li> <li>→ Identify software configuration</li> <li>→ Develop testing strategies</li> <li>→ Develop quality assurance strategy</li> <li>→ Develop certification strategy</li> </ul>	<ul style="list-style-type: none"> <li>→ Create detailed migration blueprint</li> <li>→ Develop program specifications</li> <li>→ Performance planning and benchmarks</li> <li>→ Design base functions: exception, logging, etc.</li> </ul>	<ul style="list-style-type: none"> <li>→ Publish programming standards</li> <li>→ Build base functions</li> <li>→ Build migration engine</li> <li>→ Unit test</li> </ul>	<ul style="list-style-type: none"> <li>→ Execute test plans: system, E2E, UAT, volume</li> <li>→ Execute simulated migrations</li> <li>→ Enhance transformation rules</li> </ul>
Metadata Repository	Requirements Document	Strategic Plans	Specifications	Migration Software	Certified Migration

Tasks create deliverables

# Methodology - Project Planning

Project planning for data migrations is often overlooked or deferred, while all focus and energy is directed toward development.

- Start data migration planning early.
- Create a separate project plan for migration.
- Assume the effort will take longer than you expect.
- Assume the effort will be more complex than anticipated.
- Commit dedicated resources.
- Commit dedicated environments.

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## Methodology - Project Planning *(cont'd)*

A “divide and conquer” strategy is employed to develop expertise in the source and target data stores and create manageable units of work.

- Develop source and target expertise by deploying independent analysis teams.
- Create manageable units for analysis
- Designate discreet logical data domains within the target and further sub-divide both teams by target data domains.
- Target data domains can be used during construction and testing.

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## Methodology - Project Planning *(cont'd)*

Define, from the target perspective, the scope of data and the logical classifications of data (domains). This will help to estimate and plan the project.

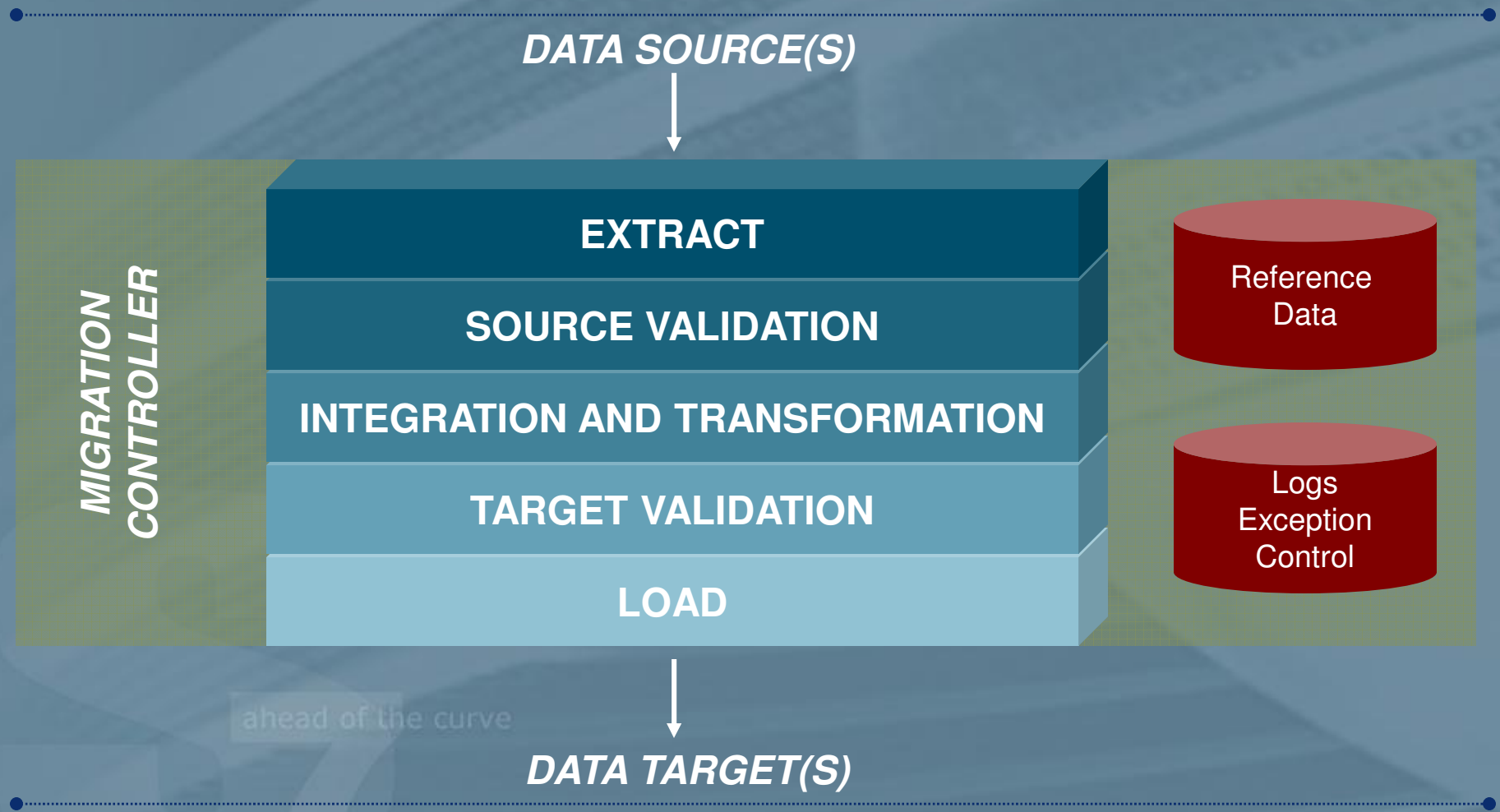
- Identify target data stores.
- Identify entire set of candidate data sources.
- Classify data by domain.
- Identify in-scope data sources.
- Identify out-of-scope data sources.
- Publish clear and concise scope document.
- Scope may evolve with further analysis.

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# Migration Model

Typically, data migration is performed by a set of customized programs or scripts that automatically transfer the data.



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## Migration Model *(cont'd)*

The process steps of a typical data migration are:

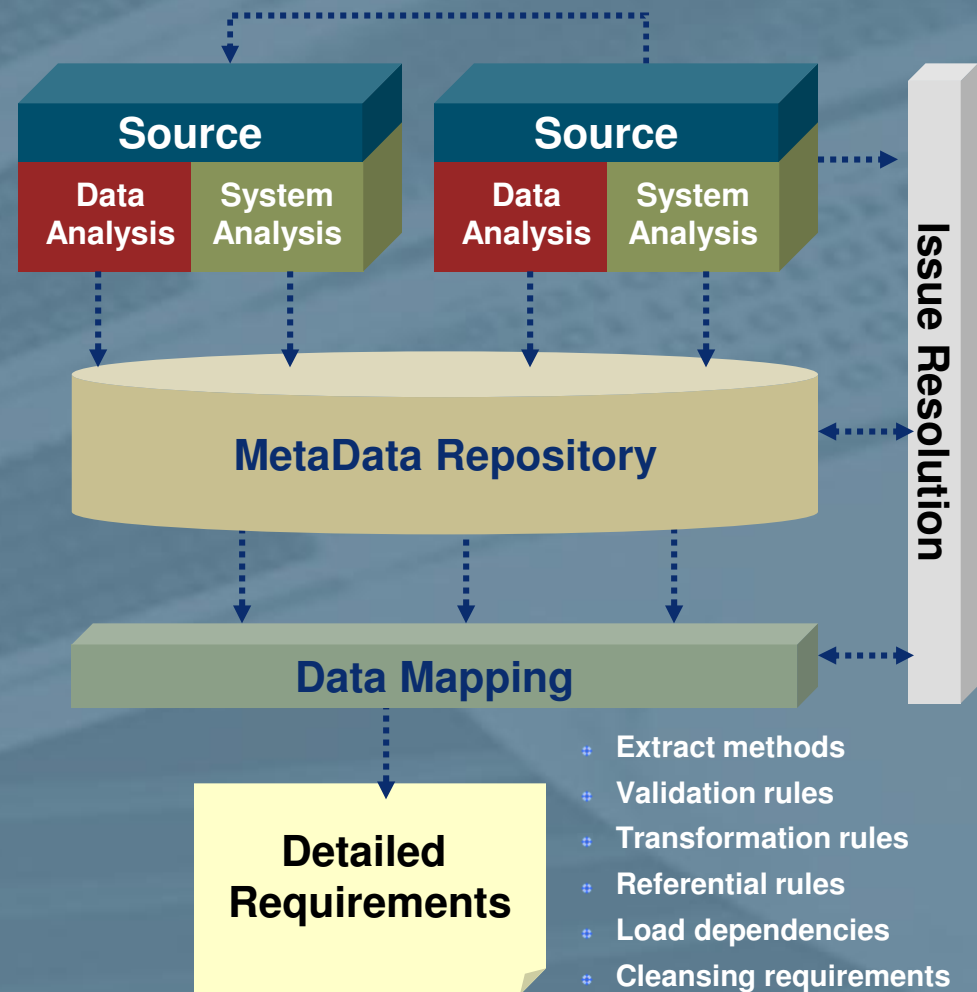
- Extract – read and gather data from source data store(s).
- Source validation – confirm content and structure of extracted data.
- Transformation and Integration - convert the extracted data from its previous form into the target form. Transformation occurs by using rules or lookup tables or by combining the data with other data.
- Target validation – confirm content and structure of transformed data is valid for target.
- Load - write the data into the target database.

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# Analysis & Mapping

Our methodology ensures a thorough and complete analysis of the source and target data stores which is key to achieving migration success.

- Data analysts identify data characteristics, properties and volumetrics.
- Data quality is measured and assessed to requirements.
- System and business analysts study integration of data and business rules.
- Metadata repository integrates source and target data in mutual format.
- Mapping data from source to target is a three step process
  - Map to the target – driven by the target data requirements, in the context of the target business rules, attempt to satisfy requirements with source data.
  - Un-mapped source – validate requirements for data not included in the target.
  - Un-mapped target – determine course of action when data requirement is not satisfied by source – consider deriving/defaulting data values.
- **Business Requirements Document**
  - Detailed description of the extract and transformation rules
  - Input to detail design and test plan creation.



# Data Quality Assessment

The data quality assessment is performed to gain a complete and thorough understanding of both source and target data. Understanding data will avoid unpredictable transformation results.

- Systematic approach to gaining knowledge about data.
- Identify data anomalies.
- Materially improve the quality of data content.

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## Data Quality Assessment *(cont'd)*

Improving data quality is ongoing for the duration of the project. One by one, remedies for data anomalies are developed.

### → Quality cycle

- Baseline assessment
- Identify data anomalies
- Develop recommendations
  - Alter source data
  - Alter extracted data prior to transformation
  - Fix included in transformation
  - Circumvent, migrate and fix after migration
- Implement data remedies
- Simulated full volume migration (to transformation)
- Improvement monitoring and anomaly tracking

# Total Quality Management Methodology

Strategy 7 follows the Department of Defense Total Quality Management Methodology, a hierarchical approach to assessing and improving data quality.

- Total Quality Management Methodology
  - Level 0 – Domain Assessment
  - Level 1 – Completeness and Validity Assessment
  - Level 2 – Structural Integrity Analysis
  - Level 3 – Business Rule Compliance
  - Level 4 – Transformation Rule Compliance

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# Migration Software Tool

Strategy 7 recommends the use of the DataStage XE software tool to assist, simplify and facilitate the analysis, design and development.

- Simplifies data extraction, transformation, cleansing and loading of migrated customer data
- Both tunable and scalable to accommodate the conversion volumes dictated by the project
- Runs on multiple platforms and communicates with host data bases and files
- Robust and battle tested
- AT&T FA Approved

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