

# Effective Test Data Management for Software Testing CASE STUDY

By :  
Harshavardhan Peddireddy  
Sr. Data Analyst  
Paramount Software Solutions



**Client:** A leading supercenter retail chain.  
**Project Name:** Legacy Addl Tst 2019

**Design Date:** 08/20/2019  
**Completion Date:** In-Progress

**Background:**

Efficient management of data used for testing is essential to maximizing return on investment and supplementing the testing efforts for the highest levels of success and coverage. If the data used in testing does not promote ease of use and adaptation, poorly represents the sampled source, or consumes excessive resources for preparation and maintenance, a negative impact on the desired outcome quickly manifests and continues to degrade the quality of results. Below are some of critical data challenges faced at client’s Test Environments.

**No TDM Process in place**

Non- Formal ways of receiving Test Data Requirements leading to requirements that are often incomplete and requiring significant further elicitation time

**Scenario Based Data**

is very difficult to create manually and hence fit for purpose test data is usually unavailable.

**Delays in Sprint MVP**

Without test data, developers and testers are scrambling for data to test with, usually delaying sprint and release schedules.

**Data Quality**

No regular data refresh schedules happening, so test data is not as current as production data



**Data Burn Out**

Multiple teams access the same test data and burn it before the next team gets access to data, hence making it difficult to keep data in sync.

**Data Sync Up Issue**

Data from Retail systems come to Finance for posting and this sync up flow is not very smooth in Test Environments.

**PII Data Handling**

PeopleSoft system requires data masking and scrambling before handing over to test or any other team because of compliance. This team cannot move some of their work offshore because of this challenge.

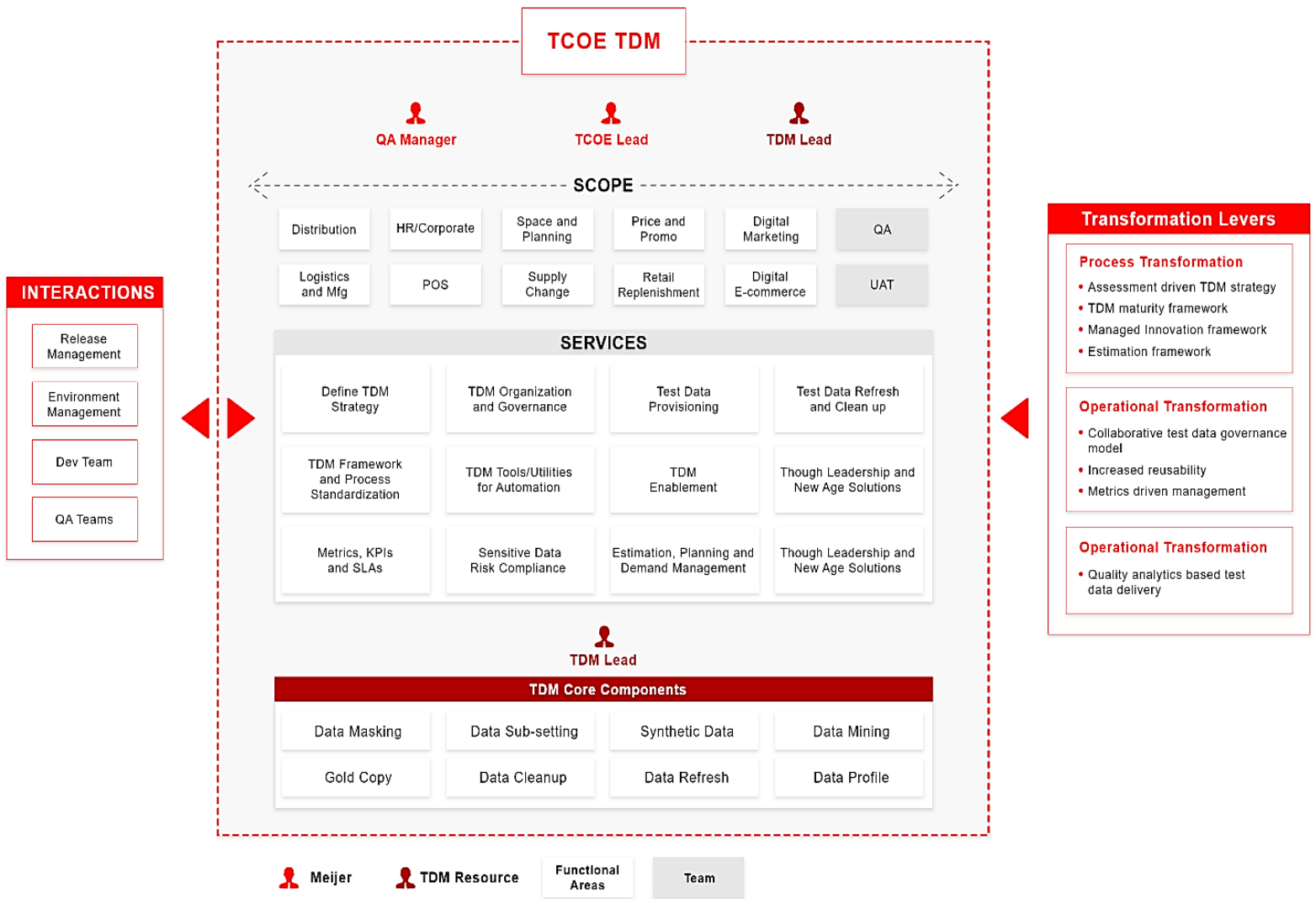
To balance in favor of positive results and improved returns, consider the process, potential challenges, and possible solutions involved in TDM.

**Approach:**

The Long-term vision of TDM strategy is to provide centralized one stop Test Data solution for all data challenges that the client faces. Also establish TDM Operating Model & Governance which can help to reduce the overall Test Data perpetration efforts which is in range of 30% - 50% in some areas.

Also Define Data Provisioning Approach and Solutions including

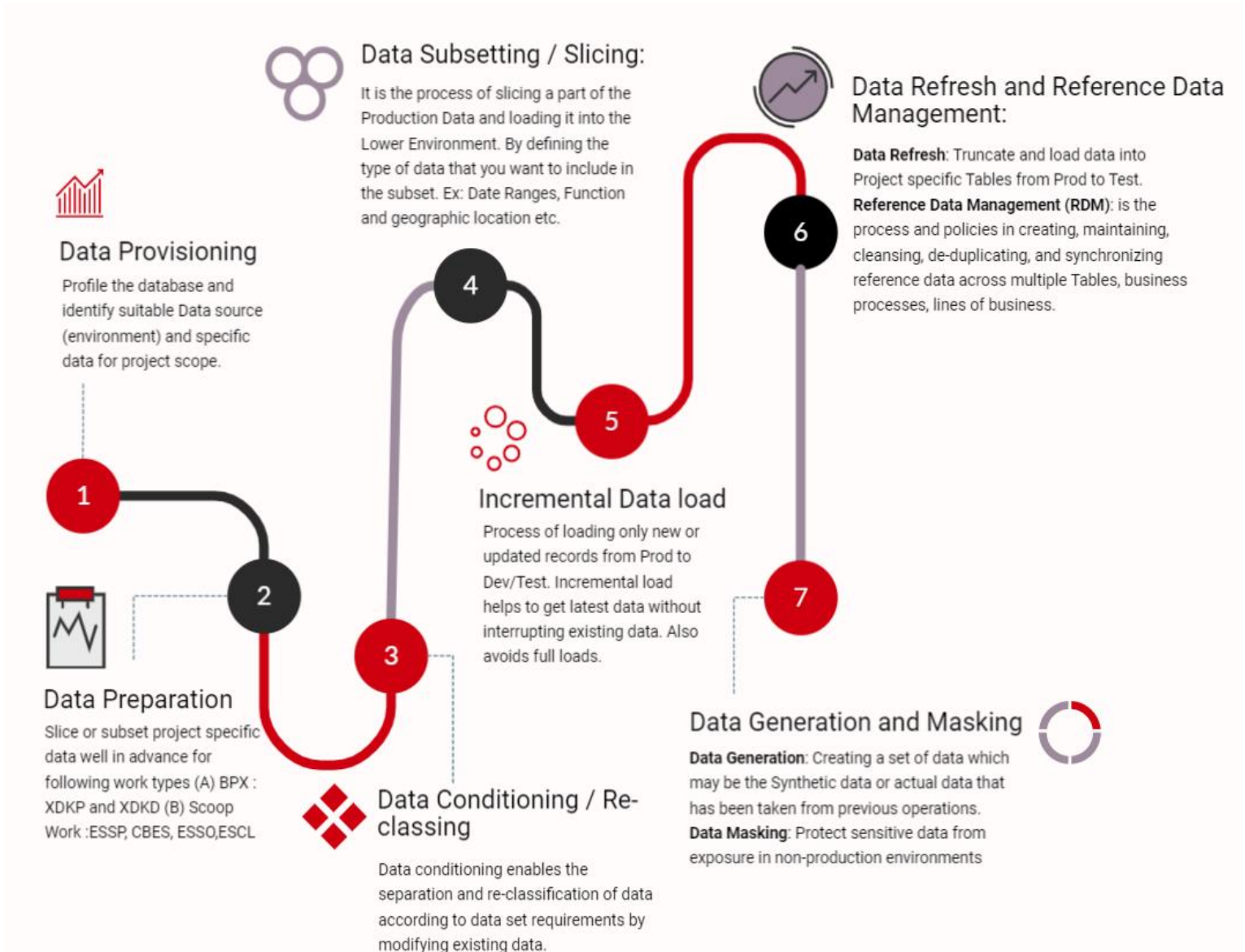
- Framework for Data Reuse
- Data Masking, Data Subsetting, Synthetic Data Generation Approach
- Data Refresh & Clean-up Approach



**Solution:**

The Key components for long term solutions is by optioning TDM Framework and utilizing CA TDM Tools.

**TDM Framework and process: -**



**CA TDM Tool:**

1. **CA Test Data Masking service:** enables the creation of realistic data in non-production environments without risking exposure of sensitive information to unauthorized users. It also ensures that
  - Data compliances are maintained for Offshore environments.
  - Handle Data protection regulations – HR/Payroll
  - Profile data to discover sensitive data elements
  - Mask consistently preserving referential integrity
2. **CA Synthetic Test Data Generation:** capability generates Test Data in faster way based on the business requirements On Time without dependency on multi-layer teams.

- Augment POS data copied from production.
  - Automatically profile data, measure its coverage, identify missing data
  - Increase data coverage for negative and edge test cases on payment modes
  - Create test data from scratch for new features and apps around customers
  - Clone and condition data from any relational data source
  - Supports multiple relational databases and other files structures
3. **CA Test Data Self Service Portal** for Quality Data
- Self-service UI to provide test data requests, automated test data requests and fulfillment service.
  - Standard test data management lifecycle & centralized workflow system.
  - Eliminate contention for test data and help in matching right data with right test cases at the right time.
  - Mine test data criteria from multiple backend systems such as ARIBA, POS DB's etc.

### **Results:**

Implementing an effective TDM Framework and TDM tool, as envisioned on the challenge, is expected to provide a solid foundation for supporting and fostering innovation and collaboration across the client's LOB's such as Supply chain, POS, Merchandise, Corporate etc.

### **Benefits of TDM:**

- Reduction of test data setup cost & efforts.
- Reduction of test data issues.
- Improve test data quality
- Data availability and periodic data health checks to make sure data is current and intact.
- Clone the sensitive and compliance data ( PCI, PHI and PII )
- Quick and faster resolution of test data issues
- Periodic data Refreshes with current production database structure.
- TDM Framework will help to identify data reusability between applications.

### **Software's and Technologies Used:**

CA TDM Tool, Mainframes, DB2, JCL, Sybase, DataStage, SSIS, DBeaver and MSSQL Server.