

Mainri Inc.

[organization] Data Migration Project

Data Migration Checklist: A Starting Point

William Chen
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[organization] Data Migration Project

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Project Background

The [data migration project] was initiated to address the growing need for modernizing legacy systems and ensuring seamless data integration across [new platforms]. As [organization]s increasingly rely on data-driven decision-making, the existing [data infrastructure] had become outdated, leading to [inefficiencies, scalability issues], and [compliance risks]. The primary objective of this project is to transfer, transform, and validate data from [source systems] to [target systems] while maintaining data integrity, security, and minimal downtime. This migration is critical to support business growth, enhance operational efficiency, and enable advanced analytics capabilities. By leveraging industry best practices and cutting-edge tools, the project aims to deliver a future-proof data ecosystem that aligns with [organizational goals] and [regulatory requirements].

1. Planning

1.1. Define clear and measurable objectives

(Define clear and measurable objectives for the data migration project, including specifying the precise data to be migrated, defining success criteria)

1.2. Refine the project scope

(Define the precise scope of the data migration by identifying and excluding all non-essential data elements, focusing solely on the minimum dataset necessary to ensure effective target system operation.)

1.3. Risk assessment

(Identify potential challenges and roadblocks that could impede the data migration project. This assessment includes evaluating potential impacts on the organization and developing mitigation strategies for contingencies such as data loss, downtime, or other failures.)

1.4. Estimate the budget and set realistic timelines

(resource requirements are estimated, and a realistic project timeline is defined.)

Cost:

Timeline:

2. Discovery and Profiling

2.1. Source System Assessment

2.1.1. Data Sources

Primary Sources:

(Identify the primary sources of data, such as databases, files, APIs, etc.)

Secondary Sources:

(Identify any secondary or external data sources that may need to be migrated.)

Third, if it has

2.1.2. Data Structure

Data Models:

(the data models, schemas, and relationships between different data entities.)

Data Types:

(Identify the types of data (e.g., text, numeric, date, binary) and their formats.)

Data Volume:

(Estimate the volume of data to be migrated, including the number of records, tables, and databases.)

Data Quality:

(Assess the quality of the data, including issues like duplicates, missing values, and inconsistencies.)

2.1.3. Data Dependencies

Interdependencies:

(Identify relationships and dependencies between different data entities.)

Business Rules:

(Understand any business rules or logic applied to the data in the source system.)

Data Flow:

(Map out how data flows through the source system, including ETL (Extract, Transform, Load) processes.)

2.1.4. Data Security and Compliance

Access Controls:

(Review who has access to the data and what permissions they have.)

Encryption:

(Check if data is encrypted at rest or in transit.)

Compliance:

(Ensure the data complies with relevant regulations (e.g., GDPR, HIPAA).)

2.1.5. Document Source System

Metadata:

(Document metadata, including data definitions, formats, and constraints.)

Data Dictionary:

(Create or update a data dictionary that describes the data elements in the source system.)

2.2. Target System Assessment

2.2.1. Target System Architecture

Data Models:

(data models and schemas of the target system.)

Data Types:

(Ensure the target system supports the data types and formats used in the source system.)

Storage Capacity:

(Verify target system has sufficient storage capacity for the migrated data.)

2.2.2. Evaluate Data Transformation Requirements

Data Mapping:

(Map data fields from the source system to the target system.)

Data Transformation:

(Identify any transformations needed to convert data from the source format to the target format.)

Data Validation:

(Plan for data validation to ensure accuracy and completeness after migration.)

2.2.3. Assess System Performance

- **Performance Benchmarks:**

(Evaluate the performance of the target system to ensure it can handle the volume and complexity of the migrated data.)

- **Scalability:**

Ensure the target system can scale to accommodate future data growth.)

2.2.4. Review Security and Compliance

- **Access Controls:**
(Ensure the target system has appropriate access controls in place.)
- **Encryption:**
(Verify that data will be encrypted at rest and in transit in the target system.)
- **Compliance:**
(Ensure the target system complies with relevant regulations.)

2.2.5. Test the Target System

- **Test Environment:**
(Set up a test environment that mirrors the target system.)
- **Pilot Migration:**
(Perform a pilot migration to test the process and identify any issues.)
- **User Acceptance Testing (UAT):**
(Conduct UAT to ensure the migrated data meets user requirements.)

3. Resource Allocation and Solution Development

3.1. Set data standards

This will allow your team to spot problem areas across each phase of the migration process and avoid unexpected issues at the post-migration stage.

3.2. Architecture Design

(design of the migration architecture, including the development of the migration logic commences, encompassing the processes of data extraction, transformation, and loading (ETL) into the designated target repository.)

3.3. Resource Allocation

(including internal personnel, external consultants, vendors, and enabling technologies, user training and communication, confirmation of resource availability)

3.4. Create a Detailed Migration Plan

- **Data Extraction:**
Plan for data extraction from the source system.
- **Data Transformation:**
Outline the steps for data transformation.
- **Data Loading:**
Plan for loading data into the target system.
- **Testing:**
Include testing phases in the migration plan.

4. Backup and Contingency Planning

4.1. Backup strategy

4.2. Contingency plans

5. Execution

5.1. Pre-migration - sampling testing

To assess the accuracy of the migration and identify any potential data quality issues, test the migration process using a representative data sample.

5.2. User Acceptance Testing (UAT)

UAT ensures that the migration solution works as intended in a real-world scenario before it is fully deployed. we should focus on business goals and customer satisfaction.

5.3. Executing the Migration Solution

Following successful completion of testing procedures.

6. Documentation and Reporting

After a data migration, comprehensive documentation and reporting are essential. This ensures an auditable process and provides valuable insights for future migrations.

6.1. Documentation

provides a detailed record of the data migration process, including the steps taken, decisions made, and outcomes.

6.1.1. Migration Plan:

Include the original migration plan, including objectives, scope, timelines, and resource allocation.

6.1.2. Data Mapping:

Document the mapping of source data fields to target data fields. Include any transformations or conversions applied during the migration.

6.1.3. Data Validation:

Record the validation rules and checks performed to ensure data accuracy and completeness. Include sample validation results and any discrepancies found.

6.1.4. Error Handling:

Document any errors encountered during the migration and how they were resolved. Include a log of rejected or failed records and the reasons for rejection.

6.1.5. Migration Tools and Scripts:

Provide details of the tools, scripts, or software used for the migration. Include version numbers, configurations, and any custom code.

6.1.6. Testing Results:

Document the results of pre-migration testing, including unit tests, integration tests, and user acceptance tests (UAT).

Include test cases, expected outcomes, and actual results.

6.1.7. Post-Migration Verification:

Record the steps taken to verify the success of the migration.

Include checks for data integrity, completeness, and performance in the target system.

6.1.8. Lessons Learned:

Summarize what went well and what could be improved in future migrations.

Include feedback from the migration team and stakeholders.

6.1.9. Compliance and Security:

Document compliance with relevant regulations (e.g., GDPR, HIPAA).

Include details of security measures taken during the migration.

6.1.10. Rollback Plan:

Document the rollback plan and whether it was executed (if applicable).

Include details of any fallback procedures used.

6.2. Reporting

provides a summary of the migration process and outcomes for stakeholders.

6.2.1. Executive Summary:

Provide a high-level overview of the migration, including objectives, scope, and outcomes.

Highlight key achievements and challenges.

6.2.2. Migration Metrics:

Include quantitative metrics such as:

Volume of data migrated (e.g., number of records, tables, databases).

Time taken for the migration.

Number of errors or rejected records.

Downtime (if applicable).

6.2.3. Data Quality Report:

Summarize the results of data validation and quality checks.

Include metrics such as:

Percentage of accurate records.

Percentage of incomplete or duplicate records.

Number of records requiring manual intervention.

6.2.4. Performance Report:

Compare the performance of the target system before and after migration.

Include metrics such as:

Response times.

Throughput.

System uptime.

6.2.5. Issue and Risk Log:

Provide a summary of issues encountered during the migration and how they were resolved.

Include a risk assessment and mitigation strategies.

6.2.6. Stakeholder Feedback:

Summarize feedback from stakeholders, including end-users, IT teams, and business leaders.

Highlight any concerns or suggestions for improvement.

6.2.7. Post-Migration Support:

Document the support provided after the migration, including:

Troubleshooting and issue resolution.

User training and documentation.

Monitoring and maintenance activities.

6.2.8. Recommendations:

Provide recommendations for future migrations or system enhancements.

Include best practices and lessons learned.

7. Post-Migration Assessment Validating, Auditing and Monitor

7.1. Post-migration Validation and Auditing.

Perform post-migration validation to verify that all data is accurately transferred and that the new system functions as expected.

7.2. Auditing

Conduct regular audits to ensure data integrity and compliance with data regulations.

7.3. User Training and Communications

7.3.1. User Training

end-user training/instructions to smooth the transition and prevent any post-migration usability issues

7.3.2. Communications

Include keeping everyone informed about the migration schedule, potential disruptions, and expected outcomes,

7.4. Continuous Performance Monitoring

Regularly assess the target system's performance and investigate any potential data-related performance bottlenecks/issues.

7.5. Data Security and Compliance

Include implementing data encryption at rest and in transit, access controls, and data protection measures to safeguard sensitive information.

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