Five steps to a successful data migration

Start with Data

Why is successful data migration is important?

Data migration is a critical process that involves transferring data from one system or platform to another. Whether it's upgrading software, implementing new technologies, or moving to the cloud, a successful data migration is of utmost importance. It ensures the integrity and accuracy of the data being transferred, minimises disruptions to business operations, and supports effective decision-making and regulatory compliance.

The benefits of a successful data migration include cost efficiency, business continuity, customer satisfaction, and the ability to leverage data for informed decision-making. Understanding the importance of a successful data migration can help organisations navigate this complex process with confidence and reap the rewards of a seamless transition.

Data Integrity

During a data migration, it is crucial to maintain the integrity and accuracy of the data being transferred. Ensuring that the data is migrated correctly and without errors helps avoid data corruption, loss, or inconsistency, which can have severe consequences for the organisation.

Business Continuity

Data migration often occurs when organisations are upgrading their systems, implementing new software, or moving to a different platform. A successful data migration minimises disruptions to business operations by ensuring that critical data is available and accessible in the new environment. It allows the organisation to continue functioning smoothly without significant downtime or loss of productivity.

Cost Efficiency

Data migration can be a complex and resource-intensive process. A successful migration minimises the costs associated with rework, data reconciliation, and troubleshooting. It avoids potential data-related issues that could lead to additional expenses, such as data recovery, legal consequences, or customer dissatisfaction.

Decision-Making and Analytics

Accurate and complete data is vital for effective decision-making and data-driven analytics. A successful data migration ensures that historical, transactional, and other relevant data is migrated correctly, enabling organisations to derive meaningful insights and make informed business decisions based on reliable information.

Regulatory Compliance

Many industries have specific regulations and compliance requirements regarding data management and privacy. A successful data migration ensures that data is transferred securely and in compliance with applicable regulations. It helps organisations avoid legal and regulatory complications, penalties, and reputational damage associated with mishandling or loss of sensitive data.

Customer Satisfaction

If data migration involves customer data, ensuring a seamless and error-free transition is crucial for maintaining customer trust and satisfaction. Successful migration protects customer information, prevents data loss or discrepancies, and ensures uninterrupted services. It helps organisations retain their customer base and avoid negative feedback or reputation damage.

What factors are important in a successful data migration?

Data migration may seem a simply question of extracting, transforming, and loading (ETL) from one database to another, but there's a lot more to it than that.

Look at migration strategically and you'll see the importance of the following factors:

Knowledge
you need to carry out a comprehensive audit of your data, so you don't come up against unexpected problems later

Cleansing
you will identify issues needing correction, and this could mean deploying extra resources

Maintaining and protecting
data degrades over time (becoming outdated being the most obvious issue) so you need protocols in place to ensure consistent data quality

Governing
you need to track and report on data quality to maintain its integrity. Ideally, processes and tools used should be user-friendly and, where possible, automated

Data migration is never 'hitch-free'. From experience, among common issues are data mapping errors, failures in runtime (like network dropouts or broken transactions causing data to be left in invalid formats). Be alert for specific issues:

- missing values
- badly formatted values
- missing or duplicated records
- broken relationships across tables

If you have robust reconciliation procedures in place, these problems having a serious impact on data accuracy can be planned for and avoided.

Advances in the automation and overall capabilities of technology are helping significantly with functionalities like continuous integration with automated reconciliation processes (running throughout the project), as they can identify and flag issues in real time.
Data migration can be seen as a purely technical problem. However, the process involves numerous business decisions over data selection, transformation, quality standards, and roll-out. A business SME's guidance and ownership is critical to the success of the migration project.

Data migration is crucial in today's rapidly evolving digital landscape as companies transition from outdated systems to modern solutions, enabling flexibility and improved performance. Specialised tools and teams ensure a successful migration, establishing the groundwork for enhanced productivity, accessibility, and security. Given the complexity involved, meticulous planning and attention to detail are essential for a smooth and effective data migration process.

Five steps to make your migration project a success

1 Discovery

Discover enables you to evaluate data contained in the source system and decide on the best strategy to adopt. It is essential to have in-depth knowledge and understanding of what is to be migrated, and how it is to fit into the target system. Don't skip on resources for this as it will avoid potential problems with issues like data mapping once the data is in use in the target system.

2 Defining and designing

This phase covers migration schedules and priorities, settings for backup and replication, capacity planning, and prioritisation by data value.

It also covers possible changes to data models, as it may be necessary to change the model if, for example, the company is moving from an on-premises data warehousing to a cloud-based data warehouse, or if moving from a relational data infrastructure to a blend of structured and unstructured data.

For purposes of clarity and alignment, you should include these key migration strategy elements:

- Project scope
- Approach to the solution build - Agile? (iterative process of planning, executing, and evaluating) Waterfall (sequential development process)
- Defining criteria for data selection
- The migration architecture design
- Definition of testing and cutover strategies

3 Solution build

Migration is not just a set of technology-driven processes but also a business endeavour. If end-users are involved closely from scratch, it is easier to build a solution based on comprehensive knowledge of data rules, definitions, compliance, and priorities. These will strongly influence what requirements emerge regarding effective data modelling.

The solution build is also where you define and design the migration, which includes establishing schedules and priorities, suitable settings for replication and backup ,planning the capacity , and prioritising according to data value.

It may also cover changes to data models. For example, you will alter the extract-transform-load model if the business is moving from an on-premises data warehouse to a cloud-based system, or if you shift from a relational data infrastructure to a blend of structured and unstructured data.

Carrying out trial runs, is advisable - stakeholders can simulate different scenarios to stress-test the approach, so that if an unexpected event occurs, it can be tackled in a measured and information-driven way. Finally, never stop testing!

Conduct live system testing with all data – those used in the legacy system and any new data. Verify existing functionalities alongside new or modified functionalities in the target system

4 Cutover

This is the transition from build phase to the final one - an orchestrated part of the go-live phase when the project is deployed in production. It should be closely coordinated, involving the project manager and owner, alongside system administrators, storage administrators and the data owners.

There should be formal sign-off on completion of each step by all those involved. Have a contingency plan in place, with fallback protocols and documentation if there is failure.

Inevitably, the cutover has a greater or lesser degree of disruption, so one aim here is to minimise any issues.

There are three options for the cutover – big bang, incremental or parallel

Big bang
The big bang means building the migration architecture and transferring data to the target system all at once. You need to create a window of opportunity to perform this successfully, because it will inevitably require downtime for company operations.

Incremental
Sometimes known as 'trickle', this cutover type is suitable for companies which operate with geographical or functional divisions. It is more piecemeal, and you can move data over a longer period. It also reduces risk because it is easier to roll back a smaller subset of data if problems emerge.

Parallel
This means transferring the data to the target system, making sure that data in each system is up to date. Both systems are able to run in parallel for a period of time where the project team can validate and sign-off definitively on the new platform. Bear in mind that this approach is inherently more expensive (keeping two systems up and running at the same time) and tends to be technologically complex.

5 Audit

A forensic check on the operational capabilities and any system issues arising after a short period of live operations is a must. Set up a system to audit the data in order to ensure the accuracy of the migration.

With the advent of regulatory frameworks like GDPR, there is sure to be an increase in a need for compliance in migration projects, especially where sensitive data (like customers') is concerned. You might need audit trails during testing and cutover to ensure that each and every data item, attribute and relationship has migrated correctly. That's why it is common for organisations to operate a period of parallel running during cutover - it 'de-risks', in that you have sufficient time to test forensically, and implement the fallback plan if necessary.

Migration strategies will vary from company to company depending on the size, sector, nature of data, but these five steps are applicable to all data migration projects.

Best Practices for Data Migration

Regardless of which migration method you choose, here are some tips to keep in mind:

Back it up.

You've got to have a plan for the worst-case scenario. If something goes wrong during the implementation, you can't afford to lose data. Make sure there are backup resources and that they've been tested before you proceed with your project.

The strategy is to stick to the strategy.

A good data migration plan will prepare you for the challenges and disruptions that are inevitable in any enterprise-wide project. If you're lucky, the migration process will go smoothly. If you're not, don't abandon your plan! Prepare for the risks that come with every migration project and stick to your plan.
Having said that, even the best laid plans carry risk, so having a robust roll-back plan in place will mitigate a significant number of those risks. This will return the system to its previous 'best working state' while you address the ongoing issues.

Testing 1,2,3

To make sure you achieve the desired outcome, test the data migration throughout planning and design, implementation, and maintenance.

Not just a tech problem

Don't just assume data migration is a purely technical problem. The process involves numerous business decisions over data selection, transformation, quality standards, and roll-out. So, the guidance and ownership of a business SME is foundational to the success of any migration project.

Preparing for your own data migration?

Talk to the experts at Start with Data

Data is the lifeblood of your organisation, so if you're planning on upgrading systems, moving to the cloud, or consolidating data, a project of this magnitude demands that you get it right.

At Start with Data, our expert consultancy team has a wealth of experience in supporting clients with data migration projects.

Minimise the risks with our turn-key data migration approach - our proven process enables you to transfer any volume of data quickly and efficiently without burdening your internal teams with responsibilities they are not familiar with.

Get in touch, and we'll be happy to have an in-depth conversation regarding how we can help you to craft a successfully data migration project.

Learn more about the services Start with Data provide at startwithdata.co.uk

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