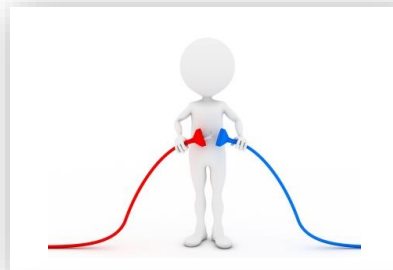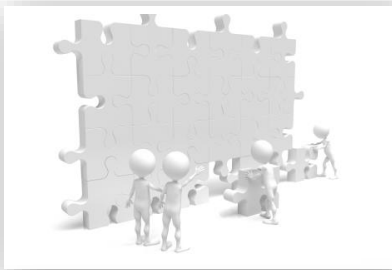# Preparing a Data Migration Plan

A practical introduction to data migration strategy and planning

Introduction

Thank you for downloading this guide, which aims to help with the development of a plan for a data migration. The guide is based on our years of work in the data movement industry, where we provide off-the-shelf software and consultancy for organisations across the world.

Data migration is a complex undertaking, and the processes and software used are continually evolving. The approach in this guide incorporates data migration best practice, with the aim of making the data migration process a little more straightforward.

We should start with a quick definition of what we mean by data migration. The term usually refers to the movement of data from an old or legacy system to a new system. Data migration is typically part of a larger programme and is often triggered by a merger or acquisition, a business decision to standardise systems, or modernisation of an organisation's systems.   The data migration planning outlined in this guide dovetails neatly into the overall requirements of an organisation.

Don't hesitate to get in touch with us at info@etlsolutions.com if you have any questions.

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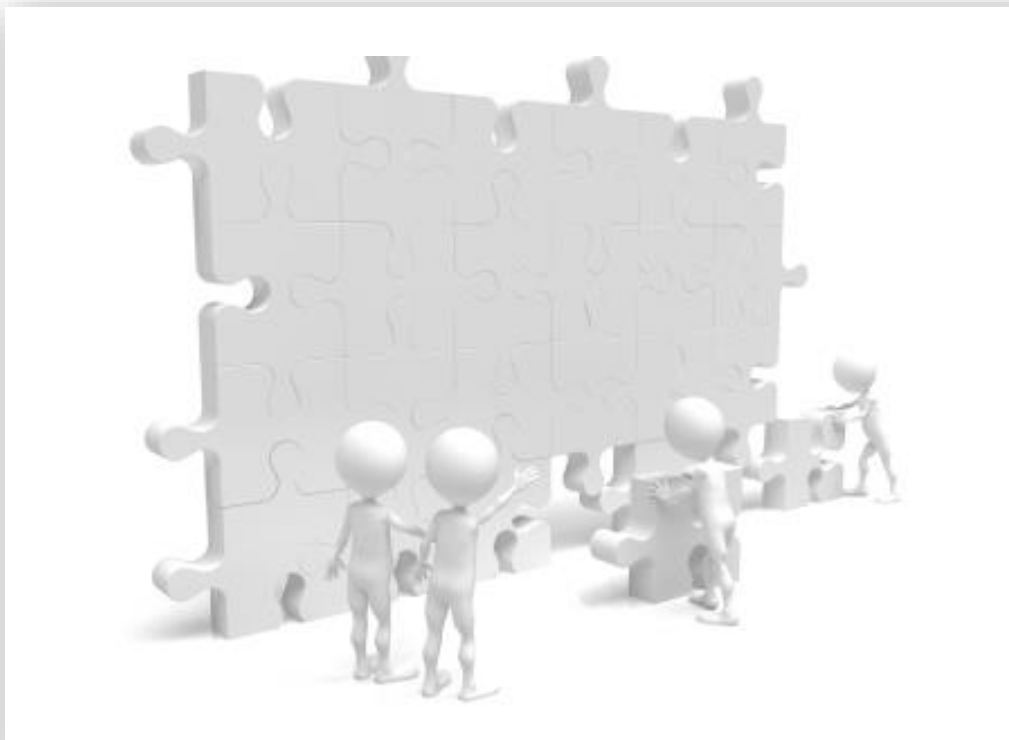
Contents

Chapter 1

Project Scoping

While staff and systems play an important role in reducing the risks involved with data migration, early stage planning can also help. It identifies potential issues that may occur later in the project, enabling the organisation to plan the mitigation of risk.

Our consultants thoroughly review and scope a project before it starts. We find it's practical to divide the review into two parts: the project's structure and its technical aspects.

The project review should evaluate the following areas:

• Are the deliverables and deadlines clearly defined?
• Is the budget sufficient?
• Have all potential stakeholders been included in the plan?
• Are there communication plans in place, and do they include all stakeholders, senior management and, if necessary, the wider organisation?
• Are there personnel in the right number and with the right skills? Will they be available for the duration of the project? Specifically, are there sufficient:
    o Business domain experts?
    o System experts?
    o Data migration experts?

The technical review usually assesses the quality and fit of:

- The proposed migration methodology and workflow
- The data security plan
- The software available:
  - Technical features
  - Flexibility
  - Fit with the skills of the people working on the project.
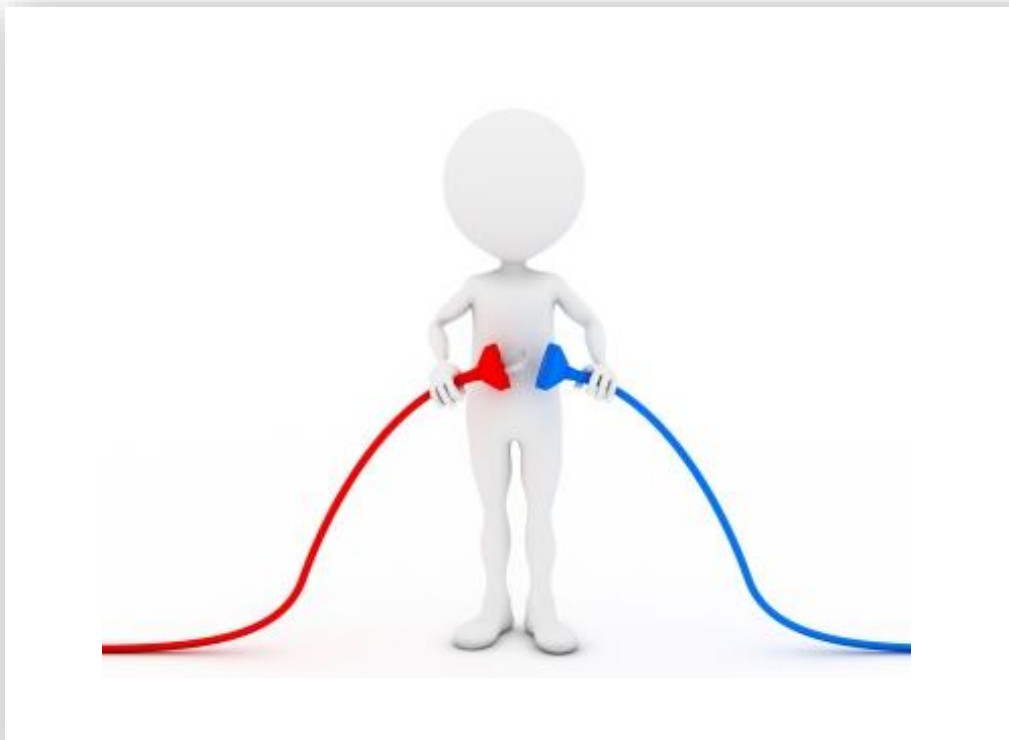- The volume and cleanliness of the data to be migrated.

Analysing these aspects in the early stages of a project will help to reduce risk and realise best practice. It also provides supporting evidence when requesting additional funding or other resources.

30% of data migration projects fail.

Source: Bloor Research, 2011

Chapter 2

Methodology

A clear methodology is essential for a staged, well-managed and robust approach to data migration. According to a 2011 report by Bloor, 38% of data migration projects run over time or budget. The report identifies an effective methodology as one of the ways to minimise these risks.

However, industry-standard data migration methodologies are scarce. One option is the Practical Data Migration methodology developed by industry expert Johny Morris, which consists of training and certification. Alternatively, most companies who provide data migration services have their own methodology; ours consists of pre-migration scoping, project assessments and a core migration process.

The complexity of data migration means that a chosen methodology can seem like a sea of options, which can be difficult to get all the stakeholders to buy into. Focus on the most startling element of the migration – the fact that the legacy system will be turned off – and the attention of the stakeholders is guaranteed.

A robust methodology should include:

- Extract design: how the data is extracted, held and verified
- Migration design: how data is transformed into the target structure
- Mapping rules: the details of the migration
- Test overview: tools, reporting, structure and constraints
- Unit test: unit test specification
- Integration test: integration test specification
- Recovery plan: recovery options for each stage of the migration
- Go live plan: actions required to go live.

Standards are used to identify problem areas early on, making sure that the project don't reach the final stages with a hundred different issues to sort out. For instance, at ETL Solutions we have the Prince2 management standard, and use ISO standards where appropriate to underpin our data migration methodology.

38% of data migration projects run over time or budget

Source: Bloor Research, 2011

Chapter 3

Data Preparation

It is crucial to thoroughly prepare data and systems before a migration takes place. In particular, landscape analysis is an important part of preparing for a data migration. It provides an overview of the source and target systems, enabling the project team to understand how each system works and how the data within each system is structured. These areas should be reviewed systematically to ensure that potential errors are identified in advance of the migration. Ideally, the team should model the links and interactions between the different systems involved, along with the data structures within each system.

Another important component of thorough preparation is data assurance. This procedure validates the data discovered in the landscape analysis and ensures that all data is fit for purpose. By validating the data, the migration team are then free to focus solely on structural manipulation and movement. Data assurance has several phases: data profiling; data quality definition; and data cleansing.

Data profiling

The aim of the data profiling phase is to ensure that any historical data due to be migrated is suitable for the changes that are taking place in the organisation. Profiling should be carried out to identify areas of the data which may not be of sufficient quality. It should include comprehensive checks of existing model structure, data format and data conformance.

A retirement plan should be used to define the data no longer required. Any data to be retired should be recorded, along with a description of what replaces it or why it can be removed. The data that is no longer needed may have to be archived for tax purposes or to meet the requirements of an industry's governing bodies.

Data quality definition

Data quality definitions state the quality that must be attained by elements, attributes and relationships in the source system. The definitions or rules should be used during profiling to identify whether or not the data is of the correct quality and format. All data quality rules should be listed at element level, such as data table or flat file. All data quality issues and queries should be tracked and stored.

Data cleansing

The first stage in data cleansing is to define which cleansing rules will be carried out manually and which will be automated. Splitting the rules into two enables the organisation's domain experts to concentrate on the manual process, while the migration experts design and develop the automated cleansing. Typically, the manual cleansing will be carried out before the migration, while the automated cleansing may be carried out before the migration or as part of the migration's initial phase.

Data verification is the part of the data cleansing process that checks that the data is available, accessible, complete and in the correct format. Our consultants often continue to carry out verification once a migration has begun, ensuring that the information is optimised prior to each stage of the migration.

We find that data impact analysis is a crucial part of data cleansing. Because cleansing data adds or alters values, data impact analysis ensures that these changes do not have a knock-on effect on other elements within the source and target systems. It also checks the impact of data cleansing on other systems which currently use the data, and on systems which may use the data once the migration is complete.

Chapter 4

Data Security

Data security has become a political and legal issue, particularly with continuing high-profile data losses. Carrying out a data migration is likely to require access to corporate or customer data that is likely to be sensitive and business critical.

It is crucial that all data is treated with respect. All sensitive information, including customer data, should have detailed levels of security in place. Before you start any data migration, check exactly what levels are in place, and who is allowed access to the data and when.

Assess the value of the data to the business, in addition to the costs that could arise from a security breach. Then make sure that the security requirements of the migration reflect this value. They should be cost-effective and not outweigh the risks highlighted in the assessment.

Legal obligations should be thoroughly checked. Statutory measures covering data breach and data protection are now in place in many sectors. These often outline the areas of security that have to be in place, as well as stipulating operating procedures to keep the data secure.

Draw up data security plans early on and embed them in the data migration plan. Areas to consider include:

- How to ensure secure data transfer
- How to create secure server access
- How to ensure secure data access
- Whether or not to increase the number of permissions required to transfer data
- Clearance and vetting of personnel, including outside consultants and partners
- The training or information sessions required by personnel
- Vetting of the software that will be used for the migration.
- Protocols for the use of email and portable storage devices.

Chapter 5

Business Engagement

The backing of senior business leaders will improve the chances of a data migration project going smoothly and ensure that you have the resources you need. The key is to remember that the purpose of the migration is to make the overall business more effective and efficient, and to ensure that this is communicated properly.

Here are a number of ways to encourage the endorsement of senior staff.

Align the project with business priorities

The project results should reflect the areas on which business leaders tend to focus. These are predominantly revenue and cost. Senior managers don't always want to spend the budget (and staff resources) required for an effective migration, so they need to be convinced that real, monetary gain lies in project success.

Manage expectations

Be honest about how long the project is going to take and what will be asked of management along the way. Make it easy for senior managers to delegate by ensuring regular communication and sign-off stages along the way. In this way, business leaders feel in control without having to micro-manage.

Link the benefits to specific business issues

Show how current challenges within the business will be helped by the data migration project. Illustrate how you are following a methodology that will not only satisfy the data requirements of the new system, but also the business requirements for the new data within the system. And talk in terminology that management can understand!

Promote best practice

Great processes can reflect positively on a company's senior management. Show in the scoping and strategy documents at the outset how the migration process uses best practice and even, where applicable, accreditations. Best practice can tend to fade during a project as time constraints loom, so make sure that the right processes are followed all the way through. Take a look at our methodology to get ideas on best practice implementation.

Build in short and long-term gains

Senior business leaders are likely to want to see short-term value added to their bottom line after making an investment in data migration. Often, data migration projects reveal their value over time, so make sure you build in some quick wins to satisfy business objectives.

Communicate the system retirement plan

Be clear about what will happen to existing business resources after the migration. Explain how any changes can mitigate the costs of the migration itself:

- Recovering licences for software that is no longer used
- Machine disposal
- Cancellation of support contracts
- Redeployment of staff
- Closure of buildings.

The retirement plan will provide reassurance that the project can be closed without any issues or additional cost. A quick shutdown of the project post-migration enables the freeing of resources, including personnel, for other projects.

About ETL Solutions

We provide access to the exact data you need

We help you to migrate and integrate even totally different systems and unique data structures. With more than a decade of experience and with a depth of expertise that is hard to find, our consultants can connect with any interface using our bespoke software and methodology. Our software is also used off-the-shelf by our clients' developers in many industries.

DataHub is our end-to-end data consolidation service. It collects and delivers your data to your exact specification. Our consultants implement and manage the proprietary DataHub software, leaving you to focus on using your consolidated data to maximum effect.

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Leading organisations use our services to get maximum value from their data

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