

# **THE BIG SECRET** TO PAINLESS DATA MIGRATION



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**PG.3**

WHAT IS LEGACY DATA?

**PG.4**

CHALLENGES OF LEGACY DATA IN ERP DATA MIGRATION

**PG.5**

THE PROBLEM WITH TRANSACTIONAL DATA

**PG.6**

MIGRATING TRANSACTIONAL DATA: A CAUTIONARY TALE

**PG.6**

HOW TO CREATE A DATA MIGRATION STRATEGY

**PG.7**

TYING IT ALL TOGETHER

**PG.13**





## THE BIG SECRET TO PAINLESS DATA MIGRATION

As businesses evolve and technologies shift, the ability to manage change is always in demand. In search of process efficiencies and productivity improvements, organizations adopt or upgrade their business management systems. Not only do they gain an entirely new data structure and set of software tools, they also inherit upgrade cycles and system enhancements.

When discussing ERP systems, we are talking in large part about data. How that data relates to the business, its environment, and the users, who make the business work. Every ERP implementation or upgrade requires migrating data from an older system to a new system or version. Do you leave your transactional data behind or spend the time and money to plan, post, validate and test?

The catch is, ERP data itself is often less dynamic than the environment in which it lives. For instance, historic sales figures in a system do not change just because some of the customers are not customers anymore. A company might re-draw sales geographies, but the sales transactions themselves – the items chosen, quantities shipped, and revenue collected – happened in the past and don't change.

As a result, data migration projects are rarely seen as value-added technology activities. Instead, these typically complex and costly endeavors are seen as a necessary evil deriving from the need to upgrade and replace systems or merge and rationalize technologies. One of the main reasons why data migration is such an arduous task is because companies must bring over huge quantities of existing master and transactional data and make it fit in the new ERP system structure.

DO YOU LEAVE YOUR  
TRANSACTIONAL DATA  
BEHIND **OR** SPEND THE  
TIME AND MONEY TO  
PLAN, POST, VALIDATE  
AND TEST?

# What is Legacy Data?

Once an event has happened within your business, the facts about that event are static. Your legacy or historical data is an accumulation of those static events, including all the customer, vendor, accounting, employee, and shareholder data that your business has gathered over the years. While it's a very important set of data to keep, it can present a major problem when it comes time to implement or upgrade your ERP system.

When your legacy data that dates back to the beginning of time meets a shiny new ERP system, it has to fit into its data structure, posting methodologies, and new workflows. All those facts, events and transactions that are happily living in their legacy format won't automatically snap right into the new format. The task of bringing forward old or outside data not only requires transforming it into a suitable format for the new system but also posting that data. Because the process of posting also transforms the data, it can be very challenging to get the various data sets to mesh into a functional whole.

Many businesses attempt to avoid legacy data migration altogether by importing beginning balances and open documents. This simplifies the process but can leave businesses at a competitive disadvantage compared to companies that have found a way to solve this problem with their history intact.

**READ:** 3 Reasons Why Legacy Data is Vital to the Success of your ERP Data Migration

READ NOW





IMPORTANT AS IT IS, LEGACY DATA CAN SOMETIMES GET  
IGNORED UNTIL IT REARS UP **'FATAL ATTRACTION'** STYLE  
AND DEMANDS ATTENTION.

## Challenges of Legacy Data in ERP Data Migration

Every business wants to keep its legacy data and preserve its integrity. And who can blame them? A company might have spent decades compiling it. It's the only way to show trends, reveal patterns and guide the way forward. Legacy data is valuable – it might even represent the very lifeblood of the company itself.

Important as it is, legacy data can sometimes get ignored until it rears up 'Fatal Attraction' style and demands attention. Data migration is one of the last steps before the production phase of a new ERP implementation. The main focus up to this point is placed on choosing, planning for and customizing the various ERP modules to be deployed. The actual data the ERP was designed to house sometimes receives scant attention until go-live is imminent and time becomes a scarce commodity.

This situation is tragic because legacy data is a key component to the success of a new ERP implementation. People love their old data not only because it is valuable, but because it provides context, and context equals reassurance in the new system. When users can access old data in a new ERP with its new screens, new commands, and new processes, it understandably proves to them that the new ERP is 'working.' This builds confidence, which can be a major factor in user adoption, powering through the learning curve and shortening the time-to-value of the project.

Regardless of the timeline for doing so – earlier is better – decisions and trade-offs must be made about the historical data. These generally bubble up out of a collection of seemingly innocent questions that invite emotional responses and have far-reaching implications.

- ▶ **What is going to be migrated, and what is going to be left behind?**
- ▶ **How should we clean the old data?**
- ▶ **How should we restructure it?**
- ▶ **How much history do we need?**



# The Problem with Transactional Data

There are two main components to ERP data: master data and transactional data. Master data spans all organizational business functions and consists of information about a person, entity or object. In the finance function, for example, master data might include GL Accounts, cost centers, department codes and company hierarchies.

**Master data** remains somewhat constant over time and is really the core data about your company which forms the basis of an enterprise-wide “system of record” for the business.

**Transactional data** typically involves facts like quantities shipped, amounts invoiced, and hours worked. They are essentially random and unpredictable and can easily add up to millions of records.

The volume of transactional facts is usually where a large part of a migration project’s difficulty comes into play. To successfully migrate the large volume of transactional records, an intimate understanding of the old system is necessary. What are the naming conventions? What is the posting process? And where are all of the associated records?

These questions bring up a whole new line of questions, such as, “Which facts need to be migrated?” And what do we need to do to them so that they fit in our new ERP data structure? This is sometimes described as the “breadth and scope” of the migration, i.e. what facts are to be migrated – breadth – and how many of them – scope?

The people concerned with doing the actual migration, those folks who have a timeline and budget to meet, will generally argue for migrating less in terms of breadth and scope. This is due to the time-consuming nature and high cost of migrating transactions. The new ERP likely does not have the same data structure and posting methodologies as the old system. Getting the legacy data to exist inside of it is arduous at best. The actual users of the system who are operating the business, using the data to make decisions, and generally making the business run day to day, will argue for migrating more. The resolution to this tension will come from organizational needs, but you can expect a long conversation about it, if not a full-throated and spirited debate.

## Migrating Transactional Data: A Cautionary Tale

Before the concept of using a data warehouse to migrate transactional data was fully developed, we were approached by a client that needed to import many years of inventory detail from their AS400 system. They needed transaction level detail with average cost from a system that had been continuously evolving for fifteen years.

Financial details are comparatively easy to move between systems, but things like payment application details and inventory transactions are usually much more complex. Average cost inventory is exceptionally difficult. The reason is that the transactions need to be recreated through the posting functions that the systems use. Importing the information without enforcing the posting process will create a system that may seem to work at first but will destroy itself later. We were able to handle this, but it was arduous. The client was willing to spend the time and money to avoid the pain of a lack of alternatives and felt they couldn’t continue to be competitive in their industry if they lost the last fifteen years of their most critical history.

# How to Create a Data Migration Strategy

What if we could make this conversation easier? What if there was a way to make fewer hard decisions about your transactional data, to be able to use more of it without the pain and high cost of integration with the new ERP? There is an easier way: use a data warehouse.

Using this approach, you load the master data into the new ERP application in the traditional way, complete with all of the mappings and adjustments that are needed. Then, you leave the transactional data out! It isn't gone for good because it isn't left out entirely.

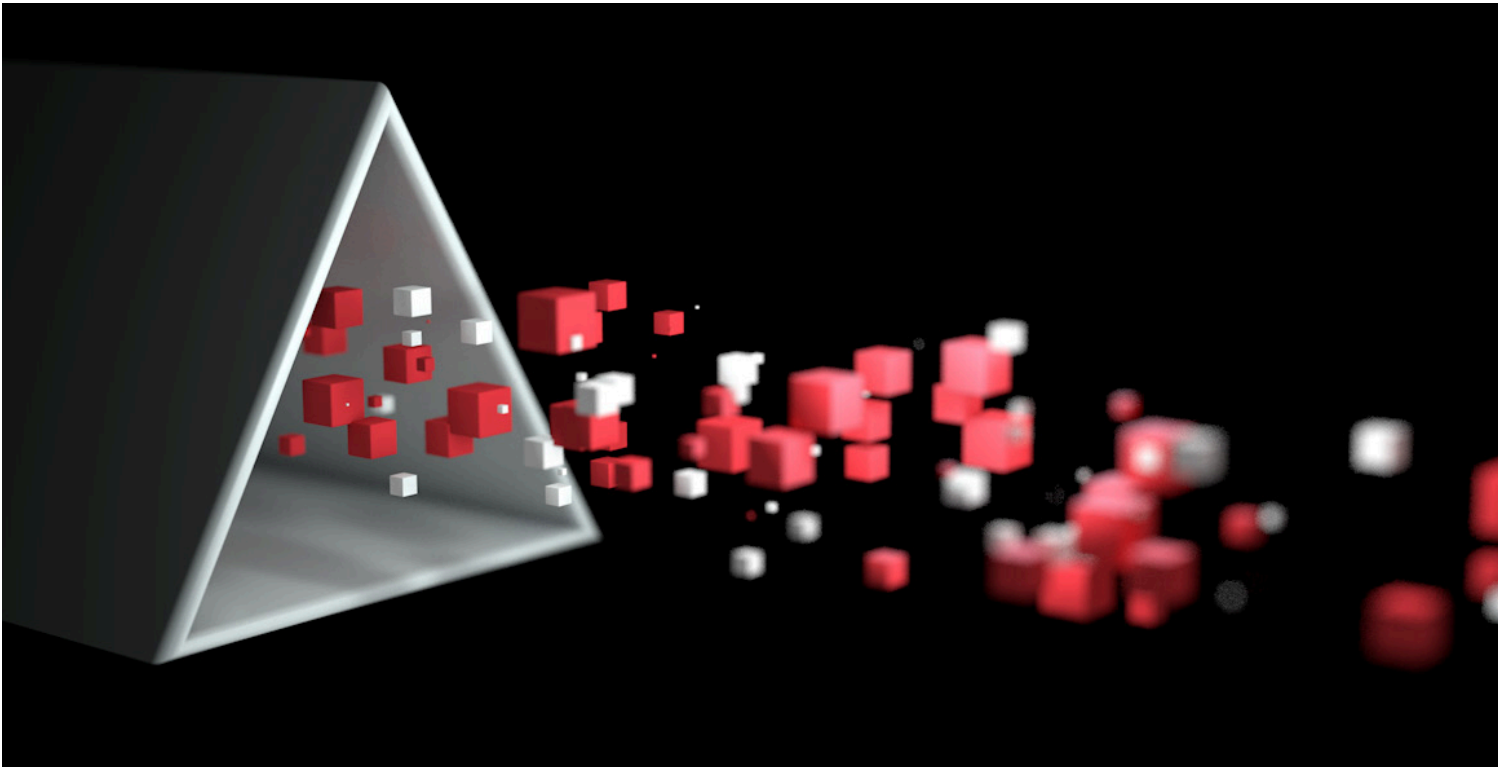
Instead, you bring the transactional data into a data warehouse so that it can be used for reporting purposes. A data warehouse will technically exist outside of the ERP system, and this is an advantage. It will allow legacy data to be used in conjunction with the new ERP without having to go through the difficult decision processes about the data or the numerous steps necessary to actually move it from one system to the other. This idea helps to drive an entirely new strategy behind a data migration project. Time to completion is drastically reduced, errors are all but eliminated, and testing time becomes a small fraction of what is needed with the traditional method. The result is legacy data combined with new data to show a seamless record of business transactions with no gaps in history for reporting and analytics purposes.

The key to success is the ETL tool used for the data migration tasks. ETL stands for "Extract, Transform and Load." The acronym is accurate because it is used to take data out of an existing system(s), transform its structure to match the new data conventions and then transform the data itself to be optimized for reporting and analysis. The final step is to load the data into an environment where it can be easily retrieved. Not all ETL tools are created equal, some are much easier to use than others. The key is using one that programmatically executes the bulk of the tasks necessary for moving and preserving legacy data from the old ERP.

**What follows is a list of steps to streamline and simplify your upcoming Microsoft Dynamics data migration project. The traditional way is outlined, and then a new approach is discussed – using an ETL tool and a data warehouse. As you will see below, the advantages of this new method are vast: speed, simplicity, preservation of data, saving time, saving money and fewer heated conversations.**

An abstract graphic on the right side of the page. It features several vertical lines of varying heights and colors (light red, dark red, and black). Scattered along these lines are squares of different sizes and colors (light red, dark red, and black). Some squares are solid, while others are outlined. The overall effect is a modern, geometric design.

**THE KEY TO SUCCESS IS THE**  
**ETL TOOL USED FOR THE**  
**DATA MIGRATION TASKS.**



## 1. Data Extraction

Data extraction involves pulling data out of legacy systems, usually for further manipulation, before loading into the new system.

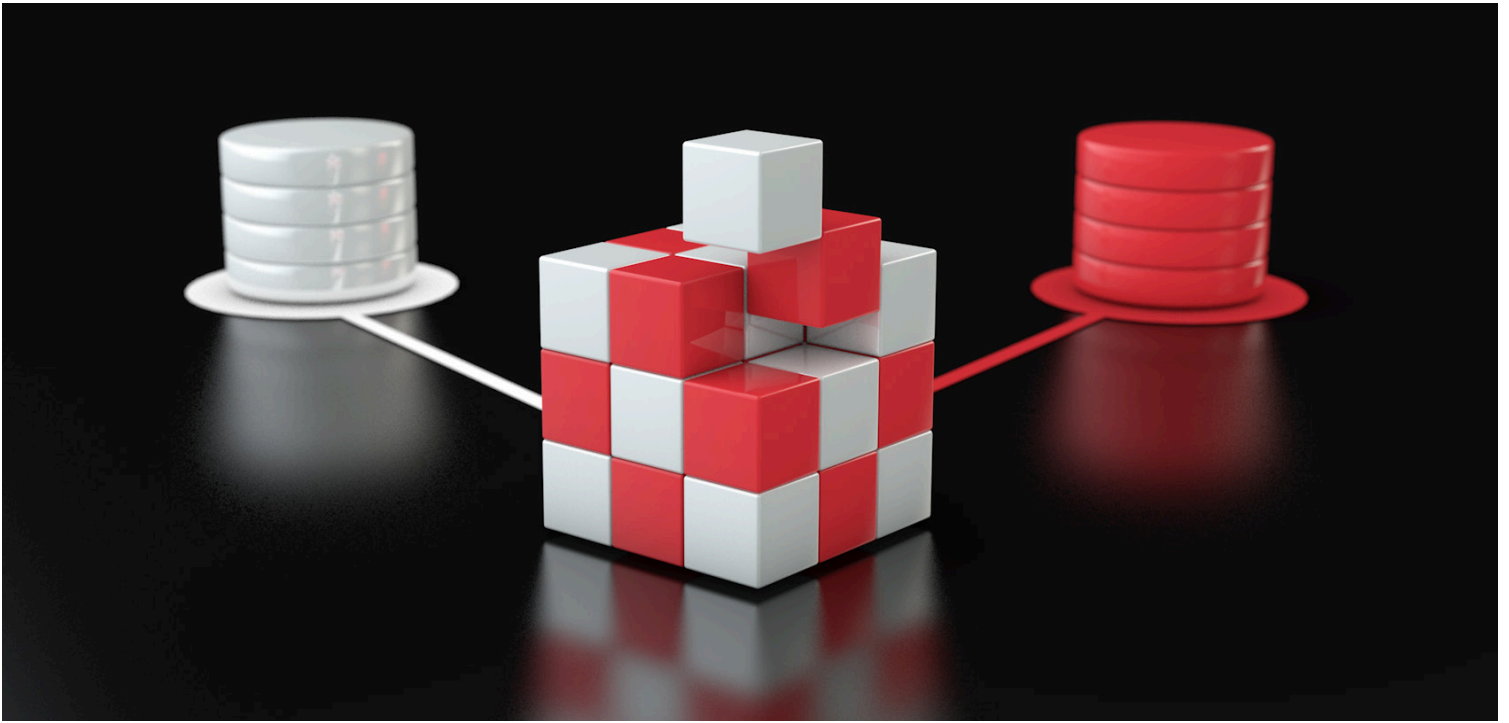
### **TRADITIONAL WAY**

The traditional method for doing this involves porting the data using a script that must be written using the native ERP programming language. This is an expensive and time-consuming process involving manual coding and testing. If the data is in a SQL database, for example, then complicated SQL scripts with Integration Services (SSIS) packages must be written. These are complex enough that they can only be written in small sections at a time. Each section is tested when the 'draft' is complete, errors identified, code rewritten and then tested again until it is correct. It is hard, tedious and very exacting work. If a word is misspelled, or a comma misplaced, then a given script must be revisited – and re-tested.

### **NEW WAY**

With an appropriate ETL tool, this entire process is automated and can be done in one sitting. It can read the database schema automatically and then lay it out in a graphical format so that tables and fields can be chosen for inclusion. The Integration Services script which transfers the data from the old ERP is written automatically and correctly. Customer numbers, item numbers, posting dates, quantities, and amounts are all extracted, transformed and loaded without ever touching the code or going through multiple testing cycles.





## 2. Data Cleansing and Harmonization

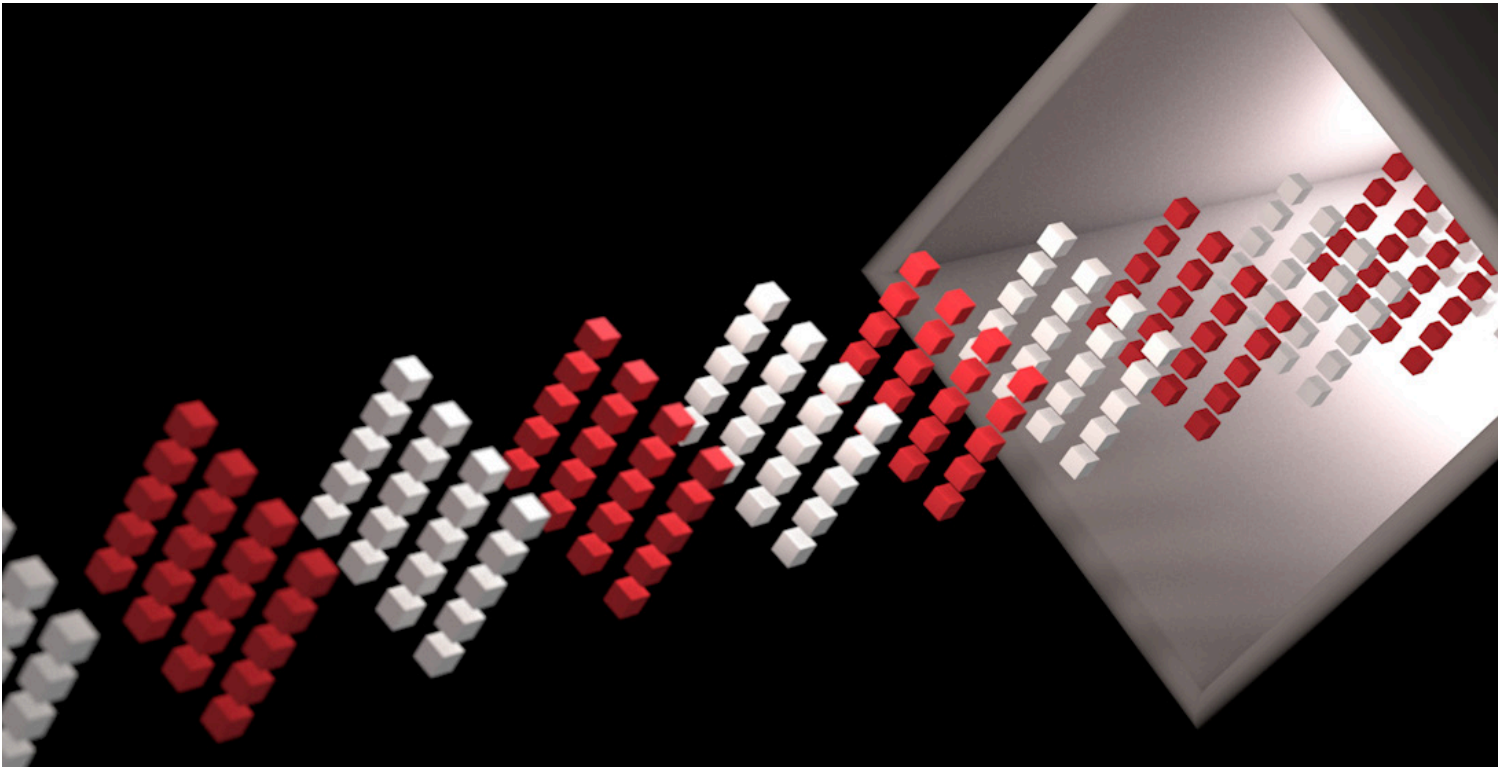
Data harmonization is the standardization of data, often from different sources, into a single format. A simple example of why this is necessary is when different parts of the organization use different customer, warehouse and supplier codes even when they are describing the same entities. Even worse is where fields in the old system have been used for more than one purpose, the result of which is that one field will hold multiple pieces of unrelated information. This is especially prevalent if multiple databases are in play and are being combined.

### TRADITIONAL WAY

In the traditional way of harmonizing data, multiple manual processes are used, including dumping data to Excel and going through the records one by one. Any manual mapping exercise like this is extremely error-prone, and those errors are hard to detect until the data is live. Using this traditional method, the task can be so laborious and expensive that an organization is forced to abandon its original plans for how much data it will bring over.

### ★ NEW WAY

An ETL tool will use programmatic data cleansing rules that can be enforced easily and executed automatically. It will also allow you to create verification rules to make sure that history is accurate, and that new data can also be verified. Extreme cost and time savings can be realized here. Business rules can be written to harmonize the data by the masses, and if the ETL tool has a full set of features, it will allow users to even use the database meta layer itself, e.g. enumerated values in Dynamics AX or option values in Dynamics NAV.



### 3. Data Loading

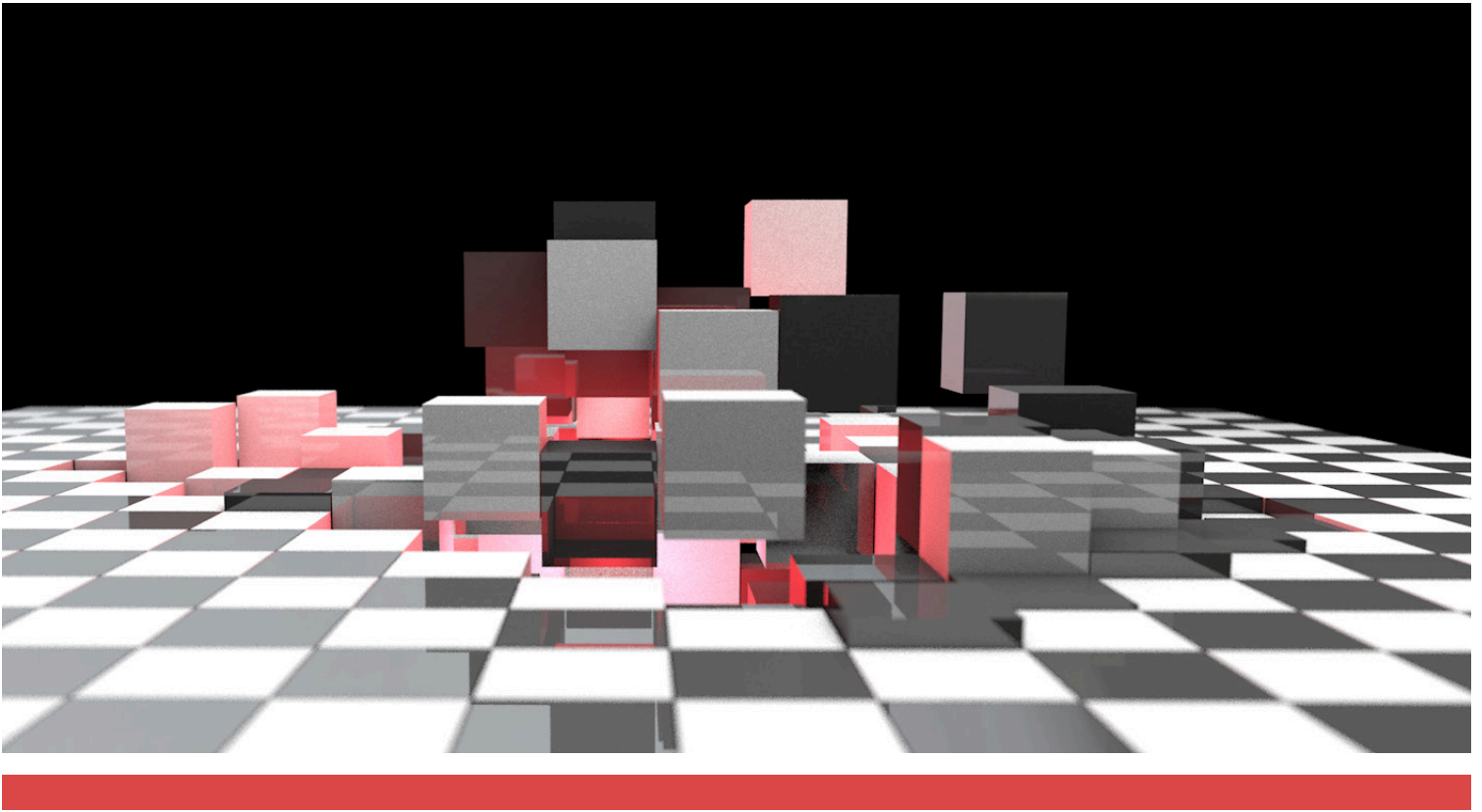
Loading the fully cleansed data files into your new ERP system is a highly detailed process typically done by a systems integrator or an ERP implementation partner.

#### **TRADITIONAL WAY**

Despite being done by professionals, everyday tools like Excel or other file-based applications will be used; all of which are laborious and error-prone. There are some ERP-based tools that are built-in to Dynamics ERP but using them is still an extremely time-consuming job due to the highly specific nature of the task and the many iterations of test cycles that need to be performed to ensure accuracy and usability.

#### **NEW WAY**

This entire process can be averted by using a data warehouse to hold data for reporting. Data is loaded programmatically into a reporting environment at the same time it is extracted from the legacy database. This greatly reduces the number of test cycles needed since an ETL process will automatically generate SSIS scripts to move the data from the old system to the data warehouse.



## 4. Data Archival

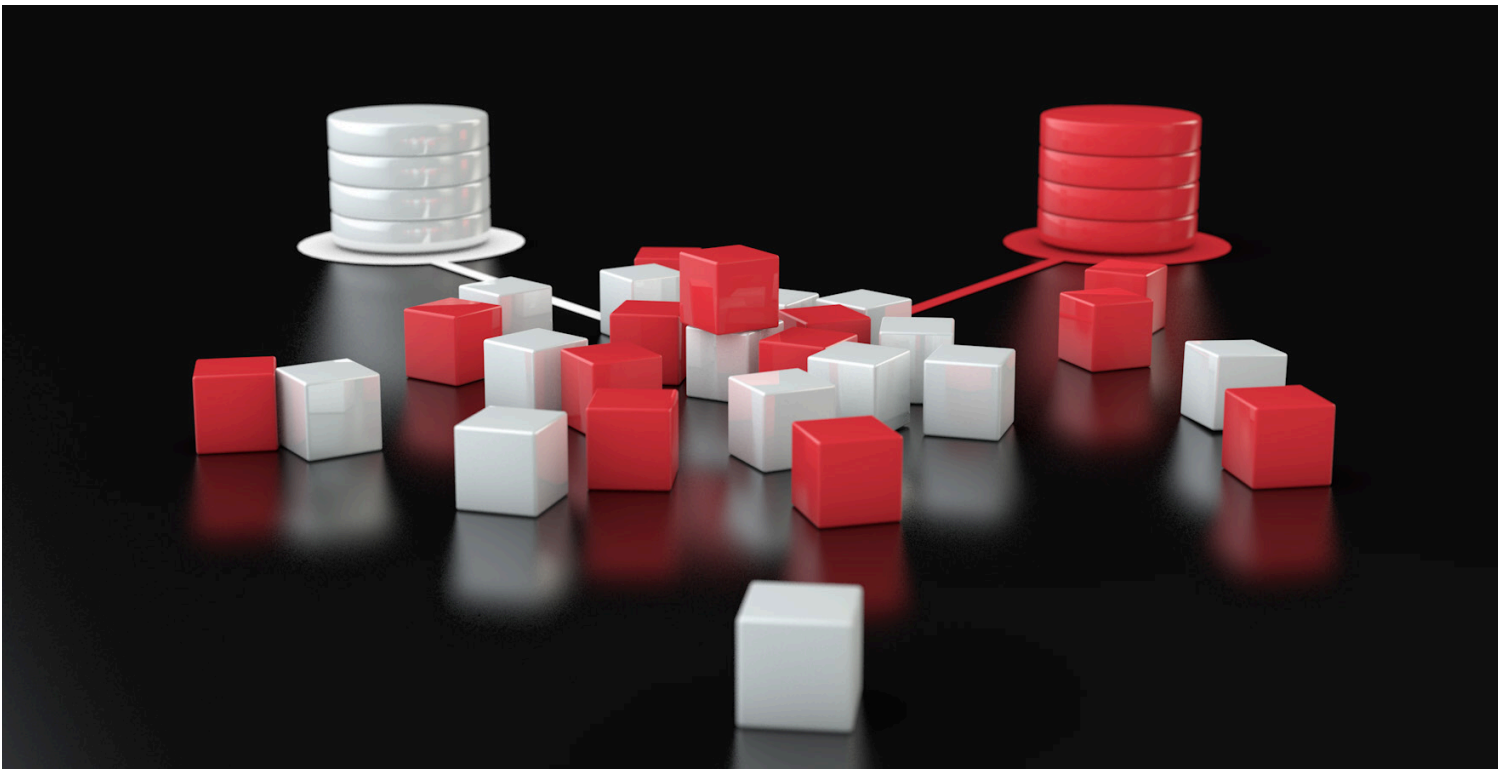
Data archiving is usually a necessary step in the traditional method of data migration. This is because some data might exist that does not have obvious business value but needs to be retained for regulatory compliance or other non-commercial reasons.

### TRADITIONAL WAY

In these cases, a secondary repository must be created and maintained. Its usefulness is often low since so much effort will have been put into defining, loading, testing and otherwise fully integrating the most important data. What data is left over is often not used on a daily basis but must be maintained as if it is. It must be housed in a secure place and then special tools put in place to query it. What results is a high effort, with low return.

### ✶ NEW WAY

Like data loading, the new approach to data migration using a data warehouse eliminates the need for any special archiving measures to be taken. The 'non-commercial' data can be placed into the data warehouse in the same manner as the rest of the data. It can be housed in a special section of the data warehouse and accessed using the same familiar processes as transactional data is for reporting.



## 5. Testing

Testing is a critical activity in any migration project, and companies typically find themselves employing a combination of manual and programmatic cycles. A manual test involves checking a predefined sample of records or specific fields. Programmatic testing may include checking data formats or searching for specific errors. These will be extensive. It includes checking individual data conversions, end-to-end testing of all conversions in sequence, and in tandem, with related manual processes. Especially time-consuming is the process of flowing transactions through the system using converted master data.

Even if the new approach of warehousing for data migration is used, a thorough set of test cycles will still need to be conducted. The difference is that since the scripts used to migrate data have been generated automatically, errors will have been greatly reduced, if not eliminated completely. Reworking will be minimal and the whole process will go much faster. Testing can't be avoided, but an automated approach will increase its success rate.

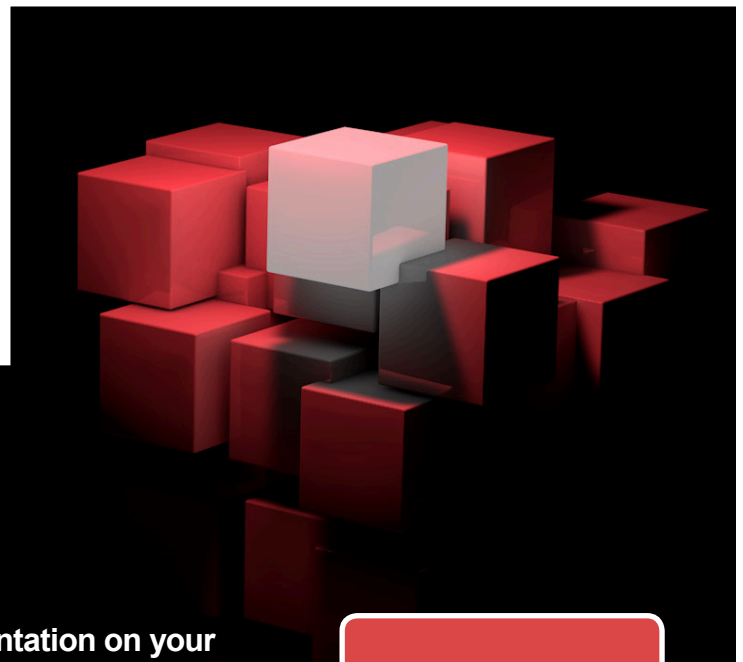
## Tying it all Together

We were recently approached by a well-known food manufacturer who was transitioning from their aging Deacom ERP to Microsoft Dynamics. Due to the time and expense involved in data migration, they were contemplating leaving their historical transaction detail behind. This was more than 7 years of history on sales trends, utilization rates in the factory and delivery performance – historical information that was vitally important to measure the ongoing success of the business.

After mapping their legacy master data to match the new Dynamics structure, we consolidated all of the historical transactions into unified tables in the data warehouse: all sales information into a single sales transaction table, all financial transactions into a single finance table and so on. This has made detailed, chronological reporting available from a unified set of tables, allowing a streamlined and easy to understand experience for end users. Their reporting is also much faster. One of their major departmental expense reports that used to take 75 minutes to execute now executes in under 5 minutes. Sales and operational reports which used to take over 6 minutes to run now take less than 20 seconds, allowing their users to be more productive on a daily basis.

Using ETL and a data warehouse that is tightly integrated with your ERP system goes a long way in reducing the time, expense and organizational struggle associated with a typical data migration project. There is an added benefit to this methodology when using a richly featured ETL solution that enables not only data migration, but a full analytics and business intelligence (BI) environment as well.


Data migration experts have long recommended implementing a BI solution at the same time as conducting a data migration exercise. With the right ETL solution, the data warehousing methodology changes a necessary evil into a value-add project. Using the same tool for data migration, consolidation and business intelligence allows the use of the same set of resources, processes and techniques, saving time, money and lowering the risk of a major IT project going astray.



**Have an upcoming Dynamics upgrade or implementation on your plate within the next 6 months?** Contact the Jet Global team to start building your time-saving, error-eliminating, efficient data migration strategy.

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Jet Global delivers complete data access and control from Microsoft Dynamics so board members, executives, finance professionals, and managers can make decisions at the speed of business without the need for bottlenecked technical resources, or data expertise. Through flexible reporting, fast analytics, and controlled budgeting solutions that leverage Excel and Power BI, Jet Global empowers users to become instantly successful and productive in an environment that is both user-friendly, familiar, and secure.



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