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## Smart Data Migration

One of the most challenging, yet often overlooked, aspects of changing a software application is migrating the data from the previous legacy system to the newly purchased application. Many software implementations have been derailed by lack of planning or poor decisions regarding moving the data to the new system.

There are many steps in this process. Feel free to take a shortcut or skip a step at your peril.

- Develop the migration plan and schedule.
- Analyze the legacy data.
- Extract the data.
- Transform the data.
- Validate and correct the data.
- Import the data in the new system.
- Verify the data in the new system.

- Migrate all or part of the data? If part, which parts of the data (selected data fields, time periods, etc.)?
- Does some of the data need to be cleaned up? If so, which data items? Who is responsible for the editing? Should it be performed before, during, or after the migration?
- Does the expertise exist in-house? What outside resources are required?
- Will the legacy software vendor help extract the data? If not, which reports provide the selected data?
- What degree of automation should be employed? Is manual entry more appropriate?
- What is the go live date? What date will the data be frozen in the legacy system so you can start the migration process?

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### PLAN

After what can be an exhausting process of selecting a replacement software program, it is tempting to rush through planning the transfer of your existing data to the new system. You can save more time than you spend in a thorough planning process.

Identify the internal and external experts, and involve them in outlining a data migration plan. Designate someone to lead and own this process. Most software vendors have implementation specialists with extensive experience in converting data from various systems. Ask them for their suggestions and if they can provide a prototype migration plan. Many suppliers offer services to assist or perform each of these steps. Although you may think you can save money by doing it yourself, often they can deliver selected conversion services at a lower total cost. As an enticement to switch to their application, they usually offer these services at or below their cost. Consider the following questions during the planning process:

Consider the volume of data (100 properties or 1,000 properties), and the value of the data to determine the amount of automation (writing data conversion programs) you will employ. Manual entry into the new application may be more cost effective. Using your people, who are familiar with the information, to enter the data can help reinforce their training and can be less expensive than a software programmer.

Review the various data items as to their accuracy and usefulness. For example, if some data was not used in the old system, why do you think that it will be valuable in the new system? I liken this to the new neighbor's overflowing trash bins, who incurred the cost of moving items to their new house only to discard them in the trash.

### ANALYZE

Compare the format and context of the data between the legacy and new systems. For example, is the owner's name stored in one field or multiple fields (first



name, last name)? If one field, is the last name first? If there are multiple owners, are there multiple fields or only one? You can see how a field titled “just copy the owner’s names and addresses” could quickly become complicated.

Understanding the relationships of the data within both the old and new system is paramount. Since software systems are the result of human logic, and humans think very differently, software systems often have very different ways of storing data. For example, some systems use numeric codes for referencing a property/owner/tenant instead of the name of the property/owner/tenant. Relating this number to the name of the entity and understanding all the places it occurs can be difficult. Older, and sometimes even newer systems, often do not have strong controls over renaming and deleting data. You can find data in one table that has no corresponding values in what should be the parent table.

#### **EXTRACT**

Here are three approaches to extracting data from the legacy application:

- Access the native database or data file directly.
- Use a vendor supplied export function.
- Scrape the data from various reports.

Extracting data from the legacy database tables is the preferred method, since only this approach provides visibility to the structure and entirety of the data. This option is not available for web-based legacy systems unless special arrangements are made with the vendor. If the database is accessible, it is often encrypted and/or access protected. Even if access is obtained, the table and field names sometimes have undecipherable names obscuring the data’s structure.

We are often asked “Do you do enough conversions from ABC Software that you have an automated program to migrate data?” In some cases, yes. Although, each software version changes data structure, and users use the systems in different ways. Also, lots of systems do not offer much flexibility in creating fields for maintaining data important to the customer. Customers often use fields not related to the name of the fields or its original intent. The reality is each software vendor has a number of tools that a specialist

selects from to solve each client’s migration project.

The last two methods require more effort in piecing the various data elements together and establishing the structure of the data. Sometimes scraping from reports is the only option (particularly for online systems) which requires additional tools to decode and format the data.

#### **TRANSFORM**

A spreadsheet is typically the tool of choice for transforming and reviewing the data. A variety of text manipulation tools are available in the spreadsheet to translate data into the required form. For example, reversing the first and last names in a field or splitting special codes appended to one field into their own field are accomplished with spreadsheet formulas. The objective is to modify data to conform with the new system’s requirements. An experienced specialist has a significant advantage over a first time novice.

#### **VALIDATE AND CORRECT**

This task is best performed by someone in your business who interacts with the data on a daily basis. They can spot anomalies much quicker and more accurately than even an implementation expert. Their working knowledge is invaluable in this step. The spreadsheet tool is particularly helpful here, since your data expert is likely comfortable viewing and manually editing spreadsheet data.

Clean up any individual data entry errors. (Systemic cleansing should have been performed in the previous transformation step.) It is generally easier to fix data problems here rather than later in the new software application.

#### **IMPORT**

The challenge in this step is mapping or arranging the legacy data to match the data fields of the new system. The bulk of this should be anticipated and performed in the transformation step.

Some software vendors (particularly hosted systems) require that you provide them with a validated spreadsheet for them to load the database. Other vendors provide built-in import capability. The advantage of importing the data yourself is you can fix

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import errors immediately and quickly iterate the import process.

### **VERIFY**

During the import process, confirm that the data appears correctly in the new application. It is not uncommon to find unforeseen problems requiring changes to the import data, and repeating the import process. Often additional data is required in the new system that did not exist in the original system. Here, the consultants from the new software vendor are invaluable. They can help determine how to get these values or give you alternate ways to set the values.

### **IN CLOSING**

A better understanding of the data migration process will help you estimate the time and resources required in these projects. It is more difficult and takes more time than you had originally planned.

Some practitioners advocate scheduling a practice run through the steps first and/or running both systems in parallel for an evaluation period. Our experience is that this dual-process approach adds significant cost and implementation time without a commensurate reduction in project risk. Instead, we recommend allocating these extra resources to comprehensive planning and carefully following each of these steps. 