

## Overview

A “top tier” global pharmaceutical corporation.

## Background

When talking with our customers, we're often surprised to find them on the cutting edge of innovation in their own industry, but clinging to tradition when meeting IT challenges, particularly data migrations. One such client, a global pharmaceutical corporation, faced the challenge of migrating one million documents from a Documentum Compliance Manager to CSC FirstDoc as the result of a corporate merger.

The migration was to be performed with existing migration tools, by an IT services firm with a strong history at the client. This third party, recommended by CSC, used off-the-shelf migration software.

The analysis, configuration and customization of the migration process required five months. The whole process would require about 3,000 transformation rules.

Management had an ironclad mandate to complete the entire project in 90 days. The client decided that they would implement migration testing using their de facto testing method: manual review of source and destination records, with the sample size determined by ANSI sampling. Theoretically, this traditional method uncovers errors effectively for high volume, repeatable processes and is often used in manufacturing. The initial sample-based testing focused on the verification that the migration rules were implemented “as designed”. That is, with approximately 3,000 migration rules, the original testing chose to verify specific rules chosen via ANSI sampling.

In initial testing of documents and metadata migrated for user acceptance testing, about 1,000 documents were sampled. If finding errors was the goal, sampling was a resounding success. As expected for any moderately complex migration, a Pandora's box of problems opened up. For example:

- » Dates used in file naming had been incorporated incorrectly.
- » Folder destinations were wrong due to an incorrect mapping.
- » When there were multiple versions of a document, with the previous version superseded and the latest version Effective, the PDF rendition of certain document classes did not migrate.
- » eSignatures on some PDF renditions were lost.
- » Document status was wrong for some document classes due to incorrect mapping.

As issues were addressed and testing continued, headaches compounded when errors continued to be discovered, and additional QA support was required by multiple resources for an extended period. Worst of all, after testing for over three months -- 200+ person-days --,

exceeding the absolute deadline for the entire project, the client did not yet have confidence the migration was functioning “as designed”.

And all of this on a modest sample of the UAT migration (itself a very small piece of the total migration scope). Since the number of potential errors was still unknown, there was no way to determine when the migration could actually be completed.

## Automated Migration

The team needed a new approach to production migration qualification – and fast. The notion of 100% testing was now considered instead of their traditional sampling approach. Valiance Partners’ TRUcompare software – purpose-built to validate GxP migrations -- was adopted for qualification of all future batches. There were seven batches in the planned production migration.

With only a two-week lead time, TRUcompare was configured for automated data migration testing. TRUcompare IQ/OQ was also performed during this period and the OQ confirmed the viability of the testing process. Two weeks was all it took TRUcompare for the analysis, configuration and customization process – 10 percent of the original five months’ time lost.

Here are the migration testing results:

- » Batch One – The process uncovered Migration Specification errors and TRUcompare detected incorrect classification for about 20% of the 15,000 documents migrated (i.e., Document type/Subtype/Unit were not classified correctly for the migrated documents). The errors were fed back to the migration team, remediated and re-migrated. Once this batch was verified to be without error, the system went into production.
- » Batch Two – The process uncovered Migration Specification errors and approximately 5% of 350,000 documents were misclassified as non-clinical documents when they should have been clinical documents. They required re-migration.
- » Batch Three – The process uncovered Migration Specification errors and approximately 1% of 50,000 documents migrated contained an incorrect Document Unit value. They required remigration.

In each case, the Migration Specification was updated, the migration process was modified and re-executed and TRUcompare was used to perform 100% regression testing. The overall timeframe for completing each batch and “getting it right” was about one week.

## Benefits

The virtues of automated data migration testing are many. Fundamentally, it turns a difficult to manage process into one that is deterministic. It makes testing of 100% of the migrated data and content viable, thereby minimizing surprises and increasing user confidence.

- » The independence between the migration and migration testing was critical to the success of the testing. The initial test results were able to identify any migration specification ambiguities and then confirm that the migration process was configured correctly. This initial test was completed on a subset of data. Additional testing verified 100 percent of the data itself. The net result includes the testing of the 3,000 migration rules and the migrated data itself.
- » Return on investment: The iterative nature of sample-based testing costs more in all but the simplest migrations. In this case, the overhead of 10 percent configuration time was not really significant, since 200+ person- days had already been spent without success.
- » Automated testing lends itself to comprehensive “audit ready” reporting, which cannot be readily accomplished via sample-based testing. This increases a company’s ability to defend itself in the case of an audit.

## Results

As the project continued, the company knew it could set reasonable deadlines with confidence, which would have been impossible without an automated testing capability. Migration qualification time was reduced to two days per batch. *TWO DAYS, instead of an undefined length of time to uncover only a subset of the total number of errors.* 100 percent document verification was performed for the entire batch, to ensure all documents were classified correctly with the proper metadata.

Note that if the company had used 100 percent testing during unit testing of the migration process, the data would have been 100 percent verified before the first batch was migrated. This would have saved over three months in the overall deployment (used for sample-based testing).

This particular pharmaceutical company has many fine traditions, but ANSI sampling for data migration testing is no longer one of them. 100 percent testing of data migrations is a new concept to many, but this example illustrates the obvious value that such an approach and technology can bring to the migration process.

## The Client's Conclusion

A migration process is driven by user requirements, which are translated by the migration team to repurpose legacy data for use in a different application. The user's requirements and understanding of the new application typically evolve throughout the process. Additionally, the migration team's understanding and ability to implement these user requirements evolve. Effectively, the users and the migration team should be expected to get something close to an "80 percent solution" initially. Thereafter, a viable migration process must assume that there will be a number of iterations necessary to go from 80% to close to 100 percent. Automated testing makes this inherently iterative process far more efficient and effective.

The complexity of this migration and the risks associated with error forces us to rethink the viability of sample based testing. It is simply no longer feasible to complete by hand.



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### About Valiance Partners

Valiance Partners is a leading vendor for high-risk data and content migrations when compliance and business risk demand "getting it right."

For more information: [www.valiancepartners.com](http://www.valiancepartners.com), or call 800.880.4540

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