When Do Automated Data Migration and 100% Migration Testing Make Sense?

More often than one might think

At what point does this additional cost become justified? The fact is an automated migration and migration testing process, supported by the right methodology, offers cost efficiencies and quality improvements while reducing risk across a broad set of migration challenges. Consider the following:

**Record Volume**

The break-even point that justifies the use of automated testing is dependent on the number of fields per record, data quality and the level of complexity of the transformations. If we assume 100 fields are to be tested and data quality is excellent, the point at which an automated approach would become less expensive than a manual approach is approximately 30,000 records. As the number of fields increase, or data quality deteriorates, automated testing will make sense at volumes lower volumes. Additionally, as field counts or volume increase cost efficiencies also increase exponentially (refer to the graph below).

![Graph showing the cost comparison between manual and automated testing](image)

**Data Quality**

If there are any material data quality issues, requirement changes during implementation or other migration process challenges, the number of migration testing or validation dry runs will increase. With automated testing, each subsequent run requires negligible labor. However, each subsequent manual test will increase costs substantially as the entire testing process will need to be repeated.
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Risk
If the data has GxP implications or is business critical, 100% testing simply makes sense i.e., sample-theory assumes a specific level of error for a sample size, which approaches zero as the sample size increases to 100%.

Divestitures
Efficient end-to-end testing (validation) using a common and acceptable third-party migration application reduces the risk and provides validation evidence for the recipient organization.

Consolidations
The benefits of automated migration testing, the ROI and risk mitigation derived from 100% testing are compounded by the number of source systems being consolidated. Valiance has participated in a number of consolidations (over 135 source systems have been, or are currently in the process of being consolidated using Valiance’s software and methodology).

Compatibility with a Broad Range of Source and Target Systems
TRUmigrate and TRUcompare support a broad variety of applications and databases typically implemented at FDA regulated companies. They provide an efficient process for configuring and testing (no custom coding required) the complex transformations that are often required, particularly when migrating between systems from disparate vendors.

Minimize Downtime
Automated migration and migration testing will reduce system downtime. Migrations of millions of records are typically managed over a weekend, shorter timeframes are feasible via TRUmigrate / TRUcompare’s delta migration capabilities.

Comparing Estimates
Manual versus automated testing
If you are comparing estimates for automated versus manual testing, the estimate for manual testing is often based on the completion of the migration testing as per a signed specification. As the specification is approved prior to the examination of the source data, any uncovered data quality issues, or other migration error, returns the original estimate back to its starting point of a
repetitive process – it may not even be clear how long the testing will take until a couple of dry runs are completed.

If your estimate is based on automated testing, the estimate is close to a “cost ceiling” as each test run verifies 100% of the data (there is much less of a chance of surprise error in subsequent runs). If additional runs are required the costs to repeat the testing is nominal.

In cases where data quality is something other than excellent, data integrity is paramount, there are multiple source systems or if you are responsible for a divestiture, considering automated migration software makes sense.