Report Writers vs. Spreadsheets
A White Paper by Daniel Levin, Liveware Publishing, Inc.

Many people have asked me, in my role as an information management consultant, about how and when a report writer, such as R&R Report Writer that my firm publishes, can replace the use of a spreadsheet to achieve significant gains in productivity.

This question is a fair one since both categories of programs are designed to manipulate and present sets of data laid out primarily in rows and columns to produce a final result. It is the end product that adds value to everyday business functions, not the process itself. Therefore, which program category -- report writer or spreadsheet -- is most efficient and applicable to the task rests solely on two questions:

1) If only a report writer or a spreadsheet can produce the desired result, how can one determine which one to use?

2) If both programs can produce the desired result, between a report writer and a spreadsheet, which one will require the least effort?

Only One Obvious Choice

The first question is simpler to answer by applying some rules to common circumstances.

Report writers only read existing data, although it may be possible to quickly prepare a data file for use with a report writer from manual entry into a spreadsheet or database program. Therefore, if there is no existing data on which to use a report writer, a spreadsheet will almost always be a better choice. This analysis only applies to small data sets, however. If one would have to enter 1000 lines times 15 columns of data into a spreadsheet, loading that information into a database seem more appropriate. Then, a report writer is a more appropriate choice. With just 50 lines and a handful of columns to enter and simple presentation requirements, a spreadsheet would manage both requirements and a report writer alone would not be enough.

Spreadsheets are also superior for complex interactive modeling; that is, those analysis that require significant 'what if' adjustments on the fly – such as budgeting for variations in manually adjusted revenues and costs. A report writer could be employed for such a purpose – and I have done so with R&R – but the preparatory work quickly reaches a reduced return on the investment, as continual changes to the core data prior to generating the report make a utilizing a report writer for such a project inconvenient.

On the other side, spreadsheets have significant limitations that render them (virtually) useless for production of some final products. Spreadsheets' two primary constraints are the number of rows the spreadsheet can handle, and inability to join tables relationally. Many database tables have hundreds of thousand of records, and the final result may need to utilize more records than a spreadsheet has available rows. Also, spreadsheets have very limited abilities to join tables, and even less ability to join them relationally, that is, with dynamically linking records from one table with those of another based on common values. This is the province of a report writer, and spreadsheets cannot match the capability.

Another common spreadsheet restriction is in printing large volumes of data in a structured way. Whereas a report writer such as R&R incorporates page layout and publishing functions, spreadsheets are far less flexible in automatically breaking pages in logical places, specifying changes in page headers and footers, adding title or summary pages, and other controls specific to producing 'reports'. Similarly, R&R has the ability to integrate OLE documents with data drawn from tables, making it far more versatile for mail-merge and batch correspondence functions, statements, forms, labels, etc. Many of these printing formats *could* be produced with a spreadsheet, but with little less effort than doing so with a word processing program.

One or the Other

If, however, the information already resides in a database, a report writer such as R&R has all the tools necessary to manipulate and present the information. Use of a spreadsheet to achieve the same result would require downloading the data from the database to the spreadsheet, and manually performing a series of spreadsheet functions on that data set.

What many organizations do when encountering such a problem is to develop highly complex procedure involving a series of manual steps for extracting data, processing or summarizing it, and entering the results into *another* spreadsheet to produce the final result. This process is often repeated each time the final result is required, at the expense of significant staff time; which brings us to the second question. With enough time and effort, a spreadsheet program can be made to do just about anything, just as pencil and paper can. While a spreadsheet is preferable to 1940s technology, a report writer is superior to spreadsheet for dynamic manipulation and presentation of data.

If one were to take the steps necessary to turn large data sets into final results with a spreadsheet, and compare them with those to produce the same item with a report writer, the efficiencies with a report writer readily become apparent. Each time a spreadsheet is utilized to generate the final result, the entire series of steps will be necessary. With a report writer, which is – in effect – a programmed series of steps, only the initial definition of the steps is comparable. Each successive generation of the final product with a report writer, then, requires only the launching of the report, rather than a series of steps. Clearly, a report writer is better suited for these circumstances.

Why Do People Continue With Spreadsheets?

My analysis in the previous section strongly establishes report writers as the better tool for manipulating and presenting data in a vast array of circumstances. This has been true in my experiences with, literally, hundreds of my client firms, with dramatic savings in time and expense, and huge returns in productivity. Naturally, this begs the question: "Why hasn't everyone switched to report writers for these functions?" And: "Are the firms doing these projects with spreadsheets wrong?"

The answers are: "I haven't gotten to everyone yet!" and "Yes!" Report writers' distribution has suffered from the lack of a high-profile publisher from the early days, while spreadsheets were widely distributed by Microsoft (Multiplan, then Excel) and Lotus Development (1-2-3, Symphony). Now, nearly everyone has access to a spreadsheet through an office suite of products, while none of the major office suites include a true report writer.

The result has been general distribution of knowledge on the use of a spreadsheet for a wide variety of tasks, including those for which report writers are better suited. My experience is that typical computer uses go with what they know, even if learning something new would save them countless hours of effort – and even significant amounts of money. The uncertainty of ultimate success with something new is a powerful deterrent for many people.

From my perspective fear of failure is not a particularly powerful argument to continue with a clumsy methodology. We have made a great effort to design new R&R versions to reduce its learning curve and open reporting to as wide an audience as possible. Sharing of knowledge of both the data in question and use of the reporting tool is an important component of its success in an organization, of course. This responsibility falls on those with the most knowledge, but overall this is a far less onerous task than development of the same end products utilizing spreadsheets. For people new to an organization, learning to use a report writer is almost always simpler than learning the complex series of steps to produce results with a spreadsheet.

The investment of time to develop items using a report writer pays off very quickly on the back end. When compared to existing methods employing spreadsheets, any initial effort may seem unnecessary. But if viewed in the overall, a report writer such as R&R is a far superior tool over a spreadsheet and surrounding procedures for manipulating sets of data to produce a desired result.

* * * Commentary and discussion is invited. Send an email to dlevin@livewarepub.com.