Process Solutions

Tom Bellinson
President
UnaPage

tom@unapage.com

Excel: The Process Wonder Drug

In my work as an ERP software selection consultant, I spend a lot of time documenting processes of organizations that are at wit's end with their current enterprise system. Ultimately, how they use Excel often informs me of the shortcomings of their current system. Excel spreadsheets are to process what snake oil was purported to be for the medical community of the old west – a cure-all.

Of course there are dangers in becoming too dependent on spreadsheets. They are not a good substitute for robust information systems. To put this in perspective, let's step back a take a brief tour of the history of the spreadsheet.

The Electronic Spreadsheet: A Brief History

I had the good fortune to be working in the microcomputer industry near its beginnings. I began working for Computerland in 1978 shortly after the introduction of the Radio Shack TRS-80 and the Apple II. At that time, there was little business applicability for these devices. There was a class of computers referred to as S-100 bus or CPM (the precursor to MSDOS) system that was used by some for business, but those who did were generally writing their own software for specific applications.

There was a product called "Electronic Pencil" for the Apple II that was the precursor to the spreadsheet, but the game really started in 1979 with the introduction of Viscalc. I remember sitting with two analysts from Comerica Bank and showing the capabilities of the tool. Both of their jaws were agape. Every time they needed a new report, they had to submit a request to the MIS team and wait six to eight weeks on average to get their report. With Visicalc, they could take data from existing reports and rework it into the format they needed for their analysis. They each acquired a computer for themselves. Within the month, Comerica order 35 more. The spreadsheet revolution was on!

The spreadsheet was the birth of personal productivity computing. Managers and analysts could now take the data they were receiving from management information systems and turn it into real business intelligence.

When the IBM PC was introduced, Visicalc was migrated to DOS. Shortly thereafter, Lotus 123 was released. 123 quickly became the spreadsheet of choice because it had better support of the PC environment and there were many added functions for string manipulation and statistics. Visicalc never regained the lead and eventually faded into oblivion.

One important feature was the ability to import data into the spreadsheet. This sped up the process of inputting data and allowed users to crunch larger amounts of data. There were still limits on the amount of data that could be loaded due to memory capacity, but the seeds of a

transition from business analysis to data management were germinating.

Eventually, the "suite wars" offered a number of competing product suites that included word processors, graphics tools and data management tools. Microsoft Office and Lotus SmartSuite emerged as the top two products. Eventually, Microsoft's competitive products and aggressive marketing strategies overcame Lotus's early lead and Excel became the de facto standard. Excel added the final piece that, along with improved data importing abilities, sealed the deal on data management – the macro. Macros allowed users to perform repetitive tasks.

Excel as a Data Management Tool

Many corporate information systems were still running on large air-conditioned mini and mainframe computers. However, the transition to relational database technology was underway there. The leader was something called Structured Query Language (SQL) that gave users a standard language to access corporate data. This was integrated into Excel, allowing users to extract data from corporate systems on demand. And, with the macro, they could automatically perform all the configuration of that data necessary to produce the desired output.

In short order, the spreadsheet liberated business people from their IT departments and the glacial pace of change in the systems for which IT was responsible.

Fast Forward

Through the 90's, there was a downsizing revolution in information systems technology. Local area networks and more powerful PC based servers allowed increasingly large organizations to run their businesses without a mini or mainframe computer. Furthermore, the development time on these new systems was coming down fast. That meant that features could be added much more quickly than with traditional corporate information systems. There was also a new class of report generation tools like Crystal Reports to quickly generate business intelligence.

All this meant the need for spreadsheets should be diminishing. However, the die was cast. Users knew Excel and how to get what they needed from it. Why learn something else? It's a fair question and worthy of a well-considered answer.

The Role of Excel in a Process

As we learned from the history section above, the spreadsheet evolved from a pure business intelligence tool, to a full-blown information management tool. I once encountered a small manufacturing company that was using Excel for EVERYTHING! Their controller had developed an entire accounting system using linked spreadsheets for the general ledger and sub ledgers. All of the company's other production management was recorded and managed using Excel as well. To say that their information systems were sub-optimal might be an understatement.

Here are a few things that Excel can't do:

- Provide Real-time alerts as data changes
- Provide user-friendly input screens on mobile devices
- Interrelate vast amounts of data
- Scale to millions of records
- Provide role-based security
- Perform sophisticated rules-based data validation
- Share data with other spreadsheets (unless configured to do so)

There are probably some I missed and I'm sure some readers will be tempted to write me to tell me about some plug-in or macro that overcomes one or even all of these deficiencies. That's not the point. There's a reason why companies use ERP and BPMS software: these tools are designed to support business processes.

The use of Excel for reporting can be significantly more time-consuming that utilizing process automation systems. There is one of two reasons for this:

- Data is double entered (into "the system" and Excel) or

- Data must be extracted from "the system" into Excel (macros can mitigate some of the time taken by this exercise)

Good enterprise systems tend to front load the data entry effort. That means that order entry and forecast data are entered and utilized for all subsequent processes in the value chain. Process stakeholders then need only enter data that reflects their incremental value add (e.g. production part counts, hours, phone call activity, etc.). Most interaction with the system is simply changing the status of items to indicate their current state. The data is already there. This makes dashboards and alerts very powerful in identifying exceptions that need to be addressed immediately – something spreadsheets don't do well.

Filling the Holes

What Excel does well is provide the functionality that is missing from an enterprise system. As organizations grow and evolve, their systems often can't adapt and the cost of replacing an enterprise system is too high to warrant anything so drastic.   Excel to the rescue!
All too often, I see companies that bailed on their ERP implementation before getting all of the available functionality in use. These holes are also filled in by Excel. Clearly, this is a waste of money (since the company presumably paid and continues to pay for the unused functionality) and time (because, as mentioned above, Excel is usually less efficient).

As you look across your organization at how spreadsheets are used, evaluate whether they are filling holes that your enterprise systems can fill. If not, evaluate the spreadsheet's ability to effectively manage the entire process it serves (not just the individual who created and maintains it). Finally, just how many spreadsheets are in use for tasks other than simple data extraction and reporting? If process stakeholders are relying on continually updated spreadsheets to run their process, your enterprise system is not getting the job done. If there are too many of these types of spreadsheets in use, it may be time to question the viability of your enterprise system.

Summary

Excel is a powerful tool – maybe too powerful for its own good. There is a tendency in the technology world to use what we know. Why learn that new enterprise system when you already know Excel? The answer may lie in an old shibboleth: "islands of information." Businesses can no longer to compartmentalize the data they need to execute processes. When Excel is used, it should be used like a paperless report in which data is loaded, reviewed and either saved as a historical snapshot or discarded.
If you must use Excel to fill gaps in the capabilities of your enterprise system, make sure these are low-value processes with limited need to share data across the enterprise. At some point your "Excel-o-meter" alarm should sound indicating that your organization is overusing Excel and underutilizing your enterprise system. Keep monitoring and evaluating Excel usage. Like snake-oil, it's not always the best cure even if it works sometimes.

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