Do you Excel?

"The use of spreadsheets in business is a little like Christmas for children. They are too excited to get on with the game, to read or think about the 'rules', which are generally boring."
(David Finch, Head of Internal Audit, Superdrug)

Some of the most prolific programmers in most organisations are not part of the IT department. They are probably sitting next to you right now. They are the users of the ubiquitous software on the vast majority of office computers these days – spreadsheets and databases. In fact, they appear so easy to use that very few risk-aware individuals give them a second thought. Nearly every Excel user would consider themselves some sort of expert on the subject. After all, apart from the fancy charts etc there's not a lot else to know, is there?

Unsexy

Unfortunately for many, there is quite a lot else to know, and a lot of it isn't built into the software. It revolves around the day-to-day discipline and controls which would be in place if the solution were being developed traditionally within the IT department. Boring, unsexy things like change management, access controls, backup, documentation, version control, etc.

All too often, solutions are developed as a short-cut to address some immediate requirement. They are then enlarged and made to do more things. They just grow like Topsy. Then the person who wrote the original moves onto another organisation. All of a sudden, no-one is left who knows how the thing does what it does.

If you are subject to regulation or legislation such as the Data Protection Act, Basel II, Sarbanes Oxley, Payment Card Industry Data Security Standard etc you may in fact be obliged to implement proper controls.

Significant errors

Various research projects have demonstrated that an amazingly high percentage (up to 90%) of spreadsheets contain significant errors. However, whilst the results look credible, these errors are seldom noticed.

Part of the problem is that controls frequently associated with software development, which normally follows a formal lifecycle, are simply overlooked when it comes to end-user computing. Even if the IT function has those disciplines in place, they frequently do not migrate out of the department. The controls might include (in no particular order):

- Input validation
- Change control
- Versioning
- Testing
- Access control
- Backup
- Awareness
- Inventory
- Documentation

Input validation

Failure to validate input gives rise to probably the most common issue of all: garbage in will inevitably give rise to garbage out. It is often possible to include reasonableness checks or other validation controls to add confidence to the integrity of the work.

You should not forget that data can not only be entered manually. Data may also be sourced by links to other spreadsheets or applications – it's

just as necessary to filter this for sense.

How frequently does someone update the functionality within the "live" version of a spreadsheet? Of course, it often won't even occur to them that there could be dangers in doing so. It has frequently been demonstrated that lack of adequate change management is the leading cause of application downtime. This is often reflected within the end-user environment in temporary changes inadvertently being left permanently in place or being incompletely reversed. More important software ought to be subject to segregated change management, so that the ultimate user is not the developer.

Versioning

Any significant spreadsheet or database should be subject to version control. This is particularly important for distributed software, so that users can be certain that they are using the latest version. In any case, it is often important to preserve earlier versions of software for recalculation of results etc.

It cannot be over stressed that any piece of software should be thoroughly tested before it is used in earnest, and equally after it has undergone any change – no matter how trivial. There is absolutely no other way of having confidence in the outputs. Tests should be devised which exhaustively cover all functions of the software with extreme inputs as well as values encountered day to day. Expected results should be documented with the tests before they are performed. It is then much easier to recognise accurate results. As well as testing functional accuracy, other tests might include volume testing (with a very large quantity of data), security testing, regression testing, etc.

Access control

Just as for any file, restrictions should be in place to ensure that data can only be viewed or changed by those authorised to do so. This is not just for confidentiality reasons; but it is a very effective control against accidental alterations which may cause problems downstream. In accordance with best practice, access to any information resource should always be granted on an as-needed basis.

One of the most frequent issues arising from the lack of involvement of the IT function in the development of spreadsheets and databases is an inappropriate backup regime (or none at all). Often they are developed on a laptop. The first thought given to recovery capability is maybe when a

disk crash occurs – at which point it may well be too late. Inadvertent deletion and untested changes are also frequent triggers for the restoration of a backup. If the mechanism is not automated, it is likely to be forgotten.

Awareness

By far the best weapon in the armoury against end-user computing chaos is to ensure that the wider community is aware of the risks they run, and of the controls which should be in place. Much of the control infrastructure in the world may be largely ineffective when confronted by user ignorance. Those not aware of the potential consequences of their actions will often seek to bypass inconvenient controls just to make their lives easier.

It's difficult if not impossible to control what you don't know you have. You will almost certainly be surprised at the number of spreadsheets and databases lurking within your network. It is not difficult to discover them all; however, without a formal inventory it is often next to impossible to find out who is responsible for what, and which the important ones are. Again, tools can help.

Without documentation of some sort, in the absence of the original author it often will be a hopeless quest to understand what a spreadsheet or database does – and how it does it – unless it is of a trivial nature.

Sometimes even the author forgets important details. Those who use this software should always record notes such that anyone else will be able to make sense of their work.

Can we help?

Obviously this paper can only scratch the surface of the risks and controls associated with end user computing. Kingston Smith Consulting is able to provide a range of solutions to protect your business. We can perform full-scale reviews of all the potential problem areas outlined above, and advise on relevant and cost-effective control measures appropriate to the size of your organisation.

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