CMSD

Your digital success partner

Whitepaper

Improve your business workflow

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Important company systems running on spreadsheets?

The Problem

Spreadsheets are great for adding up numbers. Over the years though their capabilities have grown and they are used for storing & organising all sorts of data and attempting to automate & systematise business processes.

Quite often these uses start as small projects early in the life of a company. Over the years they grow & grow, are maintained and added to by different people with no real structure of governance until you end up with a hard to control, "Frankenstein" creation sitting at the heart of your business process! They become difficult to manage, require a large amount of staff time to maintain and worst of all they are probably riddled with errors and outdated information.

An analysis of field audits undertaken by some of the world's largest accounting and consultancy firms (such as KPMG and Coopers & Lybrand) carried out by Raymond Panko, a professor of IT Management at the University of Hawaii, found that 88% of large spreadsheets used by the companies audited contained significant errors.

88% of audited spreadsheets contained significant errors

Pitfalls of spreadsheet-based systems

01 Fragility

By their very nature, spreadsheets make it easy to move information about, sort columns and overwrite data. This also means it's very easy to damage the integrity of the data without realising it.

02 Detecting errors

Once a spreadsheet-based system gets above a certain size, it's very difficult to audit and ensure that it's error free.

03 Multi-user access

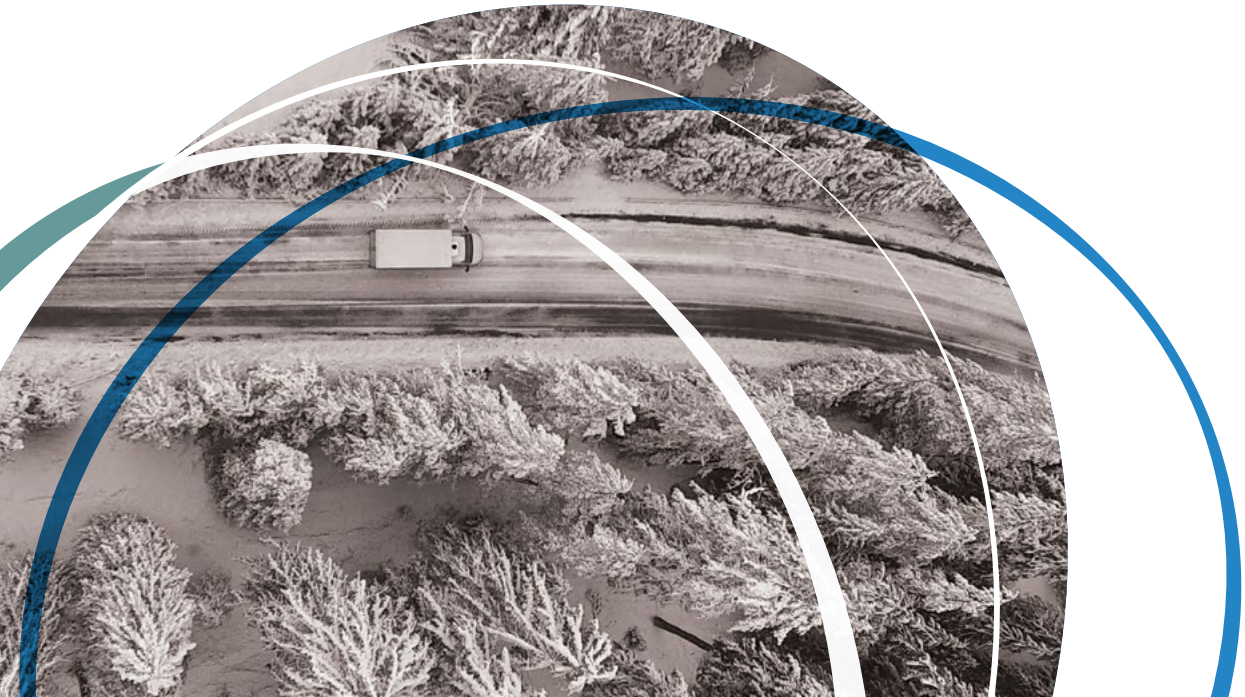
In the majority of cases where a spreadsheet is used to control a business process it has to be accessed by multiple users in the company. They're not designed to be multi-user and this easily leads to data getting lost or overwritten.

04 Audit trail & accountability

Leading on from point three, it is almost impossible to track who changed what and when. Also, if a mistake has been made, there's usually no way to correct just that error without restoring a backup (assuming a current backup is available) and then you have to work out all the other changes that were made that need to be reapplied to get back to where you were.

05 Security

When a spreadsheet-based business process grows along with the company, you inevitably end up with multiple users in your company contributing and consuming the information contained in it. It's very difficult to control who has access to what. Some users should only be inputting information relevant to their part of the process, whilst other users should only get access to read-only, top-line outputs.



It is almost impossible to track who changed what and when

06 Workflow modelling

The majority of spreadsheet-based systems that are used to control and report on a business process are, in essence, used to track a workflow in your company. These workflows, by their very nature, take linear paths which might branch and take different routes depending on what occurs at key stages of the workflow.

This kind of behaviour is very difficult to track and report on using a spreadsheet. It's also usually a passive process that requires someone to interrogate the spreadsheet to determine where a task is in the workflow and then take external measures (sending an email, calling someone for approval etc.) in order to move the process on to the next step.

07 Customer contribution

Wouldn't it be great if you could get your customers to directly contribute to these systems? Update their contact information, modify their requirements, sign-off parts of the workflow process? This is next to impossible with a spreadsheet -based system.

08 Maintenance

To start with, these systems probably did save a little time by gathering information into a single place, but as they grow they absorb more and more staff time to keep functioning. They can also be seen as laborious chores which require a lot of manual copying and pasting of information from one place to another. This often leads to the maintenance of the systems becoming low-priority or conducted in a slapdash manner, all of which represents a significant threat to its use as a system.

09 Data integration

Whilst it is possible to embed data connections into spreadsheets to either pull or push data to another system you might use, it's a little bit of a dark art that lacks transparency and auditability. More often this is achieved by manual exports and imports, which are prone to error and data corruption.

Manual copying and pasting poses a significant threat to a system on which your company relies

10 Customer contribution

In this digital age, your customers are only ever a couple of clicks away from your competitors. One of the biggest factors helping customer retention is speed and quality of service. Providing feedback to your customers on a spreadsheet-based workflow process is going to require someone to manually interrogate the spreadsheet and then either send an email or pick up the phone. This is time-consuming and once again prone to error. If you're not making it easy for a customer to do business with you, then you're inviting them to find someone else who does.

11 Remote access

Leading on from the point above, if you have staff 'in the field' it's next to impossible to give them access to a spreadsheet-based system that is current and accurate. You could use a cloud-based system like Google Docs, but these are notoriously difficult to use effectively on mobile devices such as phones and tablets.

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12 24/7 data access

In the modern business world, we are increasingly working 'out of hours' and quite often for senior management, it is only in these 'out of hours' moments where you have the time and space to analyse and think strategically about what is happening in your company. This is the one time where having easy and concise access to the information contained in these systems is most valuable, as this is the time when you're trying to understand what is happening with your business and make the strategic decisions that will keep you moving in the right direction.

But this is also the time when it's most difficult to access these systems and also if you find something questionable, it's the one time when the person responsible is probably not around to ask! Also, you are either accessing the spreadsheet via a remote desktop system, which is painful, or you've taken a local copy, which, if you change it will have to be reintegrated with the office copy when you return.

The Solution

It used to be that commissioning a custom software solution was an expensive, lengthy process requiring a substantial investment in both hardware and software. This is no longer the case. Using open-source software frameworks and cloud deployment, cost-effective and highly scalable solutions can be implemented quickly and efficiently.

There are also lots of 'off-the-shelf' solutions available. For certain tasks these can be effective solutions; however they usually entail a degree of compromise in terms of bending your process to fit a more generic framework. The benefits of a custom solution is that it is absolutely tailored and optimised to the way you need it to work, which yields the best ROI in terms of improved efficiency, more accurate information and improved customer service.

Integration is also an important factor to consider. Most 'off-the-shelf' systems also expose integration points where data can be automatically pushed or pulled from a system. Therefore, by using a custom solution it would allow these systems to be bridged as part of your business workflow. For instance, a custom-built customer booking system could also push customer details into a CRM system, add them to an email mailing system and even create an invoice for them in an accounting system.

Web-based systems automation bridges the gap between elements of your business workflow

Advantages of a custom web-based solution

01 Robustness

Because a custom-built solution is exactly tailored to your requirements and workflow it can incorporate all the necessary checks and balances to ensure that the correct process is followed every time. Data can only be input to and output from the system in the correct format.

02 Error trapping

There is an old phrase that has existed since the beginning of software system development, GIGO, which stands for Garbage In, Garbage Out. Computer systems can only work with the information they're provided with. If you put inaccurate data in, you get inaccurate data out. Whilst legislating for human error is always a concern when building any system, a custom solution can be made to address the areas where this is most likely and ensure that potentially incorrect data is highlighted and replaced with correct information.

A custom solution designed to mirror your workflow will significantly reduce the amount of staff time required to service the process

03 Multi-user support

Any custom solution is most likely to be powered by a scalable multi-user database. These databases can support hundreds if not thousands of concurrent users. Where it is important that data is only modified by a single user at a time, locking protocols can be implemented to avoid multiple users changing the same piece of data at the same time.

04 Audit & accountability

It is easy in a custom solution to record which user added, changed or deleted a piece of data along with the time and date the action occurred. This can then be analysed at any time to produce an audit trail. These audit trails can be incredibly useful when dealing with awkward situations with customers as you can see exactly when and by whom data was changed on the system.

Unlike a spreadsheet-based system, custom database-driven solutions can be written to use 'soft-deletes'. This means that data is never permanently removed from the system, meaning that it can be examined and recovered if required.

05 Security

Security and access permissions are often at the heart of a custom solution. This allows you to control who can access either the whole or parts of the system. It is also easy to set up different types of permissions for different users or groups of users.

For instance, users in Group A can have both read and write permissions on customer data, meaning they can create, amend or delete customer records, whereas Group B can be given read-only permissions, so they can search for and view customer data, without being able to change it.

Security can also be integrated into the audit trail so it is easy to see when your users (or customers) accessed the system.

06 Workflow modelling and specification

The heart of a successful custom solution is that it closely models and follows your own workflow processes. To this end, the most important part of its creation is often the initial discovery phase where a business analyst will work with you and your employees to fully understand what it is you do and what you need the system to do to automate and support this.

For any project of a reasonable level of complexity, the result of this analysis will be to produce a specification document before any development takes place. This allows you to check the proposed task has been correctly understood. It will often contain example screen and report layouts so you can see how the system will work, what information goes in and where it comes out.

07 Reduce staff time

A custom solution that is designed to mirror your workflow will significantly reduce the amount of staff time required to service the process. It does this in a number of ways.

All the required information to quickly evaluate the status of a process can be gathered together and displayed on a 'dashboard'. This gives you and your staff an 'at-a-glance' overview of where things are.

From a dashboard, you can then 'drill-down' into the detail to quickly find the pertinent details to allow issues to be resolved quickly and efficiently.

By using custom made input & maintenance forms, the amount of time required to get data into a system can be greatly reduced. These forms can provide quick lookup functionality: for example, to fully resolve a customer's address from a postcode, check stock availability or the whereabouts & availability of staff or any calculation that could be formulated.

You could provide real-time tracking as it moves through your various departments or even automated email updates as it goes through key stages

08 Make data available to customers

When running spreadsheet-based systems it's difficult to make the data available to your customers without involving you in a manual process.

With a web-based system, you can provide your customers with their own 24/7 access to the data without any effort on your part. For example, if your business involves manufacturing a product for a customer, you could provide real-time tracking as it moves through your various departments or even automated email updates as it goes through key stages. It's this kind of customer service that could really help you differentiate yourself from your competitors and guarantee long-term relationships.

The information flow doesn't need to be just one way. One of the biggest problems dealing with a large customer base is keeping your records current. With a web-based system you can shift some of this responsibility to your customers by allowing them to update their own information via a secure portal to your system, thus freeing up more staff time for more important work.

09 24/7 and remote access

A web-based solution is available to you 24 hours a day, 365 days a year. This means that even when you're out of the office or working from home, you can still have access to the same data and capabilities you have when you are sitting at your desk. No-one likes to have to work evenings and weekends, but it's a fact of the modern business world. Having 24/7 access to your system and its data means that you can deal with issues quickly and efficiently.

What's more, any changes you make are to the core system which everyone has access to, so collaborating with your colleagues is easy and can be done in real time. A solution can even be comprised of both web-based interface and also a dedicated app, all sharing the same data. By taking certain elements of a solution into a dedicated app, you can give your field operatives, be they sales or relationship managers, an optimal tool to allow them to deliver great service on-site with your clients.

10 Integration with other systems

Most business software, such as accounting or stock control systems expose interfaces (known as an API) that allow other systems to communicate with them. A bespoke workflow system is a great way to draw data from all your software systems into a single place. Using this approach, you can leverage greater value from your business data with minimal effort.

It also means that senior managers can access all the data they need to make critical decisions when they need to, rather than having to wait for other people to extract data and produce reports.

Important company systems running on legacy databases?

Although most of the points discussed above have concentrated on the problems raised by using spreadsheet-based systems to control a business workflow, most of them also hold true if you are using an old, legacy database system.

Companies who were early adopters of digital systems quite often implemented solutions using database products like Microsoft Access or Filemaker. Unless these were created by professionals with a view to how they would grow with the company and its requirements, most of them have now become slow and cumbersome to use.

They also suffer with the big issue that, in order to function, they need to have software installed locally and maintained on the user's computer. As newer workstations are added with later versions of the operating system, it becomes increasingly difficult, if not impossible, to keep these systems working effectively.

With a web-based solution, all these issues disappear. Even an older computer can still run a web browser efficiently and so can access the latest data and processes without the need for installing or maintaining local software.

Legacy databases are also difficult to take into the field with you. Often the only solution is to duplicate the database in its entirety onto a laptop which can then be taken out of the office. However, if any data is changed in the laptop version, this will have to be manually reapplied to the office system on its return. This can lead to all sorts of issues with duplicate or incorrectly overwritten data.

Also, remote access can be really problematic, as this usually requires having to access the local copy via a remote session to your computer. Good though these remote access systems are, they are often slow and cumbersome to operate. A web-based system gives you the same experience wherever you are.

Migrating a legacy database to a web-based system also represents a great opportunity to retain the parts of the database and its data that work well, but at the same time, upgrade the interface and workflow to better suit your company's needs now and for the foreseeable future.

If your legacy system is core to your business, just think of the damage it will do if you suddenly can no longer use it or access all the historical insights it contains.

Another common issue with legacy database systems is quite often finding people who can support and develop them. Over the last 20 years, the overriding drive has been to the web, so finding staff or companies who are conversant with the old technologies is becoming increasingly difficult.

Even if you can find someone, the scope of what they can achieve is quite often limited to simply patching the system to keep it going rather than being able to develop it into something that is relevant for your company now and in the future. Investing in this is simply putting off the inevitable point where the system simply stops working and is economically unviable to support going forward. If your legacy system is core to your business, just think of the damage it will do if you suddenly can no longer use it or access all the historical insights it contains.

In conclusion

Over the last 5-10 years, as web development has matured, there has been an explosion of frameworks, platforms and open-source software that makes developing complex, web-based solutions far faster and more cost-effective than ever before.

Gone are the days when even a relatively simple system would require dedicated teams of developers to work for thousands of hours to implement. The flexibility of modern development frameworks mean that solutions can be delivered in days rather than months. Their flexibility and capacity also means that ongoing changes can be rapidly written, tested and deployed, sometimes in a matter of hours.

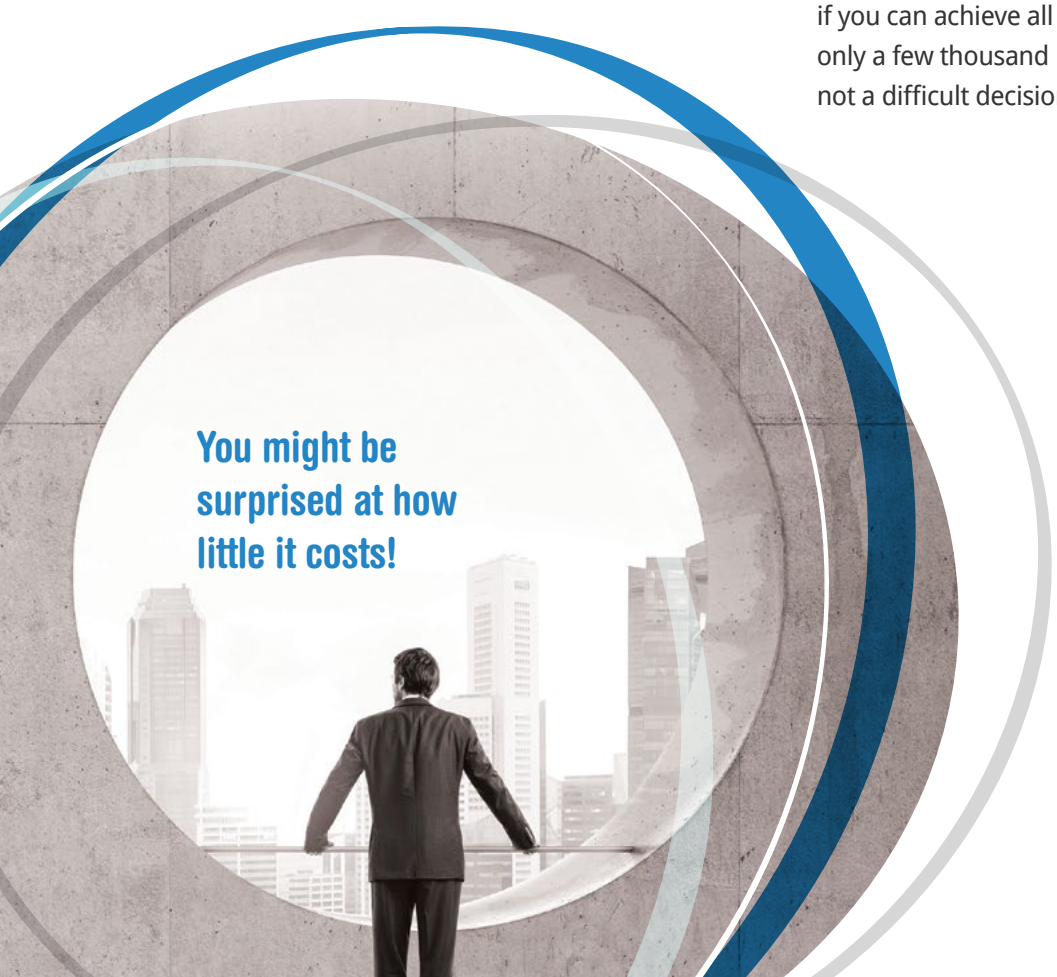
Also as these frameworks are actively used and supported by millions of developers around the world, you are never going to be held to ransom by a single supplier, meaning your investment is protected.

Provided that the development of a new system is approached correctly and you partner with a company that takes time to understand your needs, the return on investment can be impressive.

Think about it: if your current system requires a lot of laborious, manual work to keep functioning and what's worse, it is work that no-one enjoys or wants to do, then replacing it with a bespoke web-based solution is going to:

- ✓ **Improve efficiency**
- ✓ **Improve accuracy**
- ✓ **Improve security**
- ✓ **Improve accountability**
- ✓ **Improve customer satisfaction**
- ✓ **Improve the insights you gain into your business**
- ✓ **Improve accessibility**

All of which is going to have a huge positive effect on your bottom line. What's more, if you can achieve all this for an outlay of only a few thousand pounds, it's really not a difficult decision to make!



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