The Interactive Document

Interactive documents have recently received a lot of attention. In the pursuit of automation and business efficiency, the spotlight is now on what is probably the last – but certainly not the least – remaining area where document software vendors can bring value.

The relationship with customers is often supported through letters, personalised offers and other types of ad-hoc documentation. While transactional documents are fundamental to the customer relationship, they address events and a relationship from the past – i.e. they list transactions that have taken place the past. With the exception of addressing issues or errors around individual transactions, all transactional documents materialise transactions and provide evidence for record keeping. Transpromo documents help improve the customer relationship value of transactional documents, but as we know, adoption, in Europe at least, has been slow.

Thus, the primary support used by the business to manage the present and future of the customer relationship is the interactive document. This document is created by business users such as sales and marketing teams, customer relationship staff, call centres and complaints handling departments, and many more. The interactive document is highly tailored and personalised, very targeted and in particular, requires a rapid turnaround from the time its need was first identified to delivery.

Document categories

Documents have been classified in three main categories. Although there is some form of overlap between these categories, experts usually agree that there are:

- Batch documents;
- On demand documents;
- Interactive documents.

The batch document is created by an automated, robust and tested process where all components, from content to format to delivery, have been predefined, developed and thoroughly tested. Such documents are usually produced in vast numbers through background runs. Batch documents often materialise multiple business transactions such as financial statements, invoices, utility and telephony bills, etc. They can also cater for mass production of textual documents (think letters) or graphical applications (think marketing documents).

The on demand document is often considered a batch of one – an automated process that generates a low volume batch document. The key difference lies in the fact that a business process or user voluntarily triggers the generation of a particular document, usually at the back end of a business transaction (think receipt, advice slip, order confirmation). From that point on, the processes supporting on demand documents are identical to those for batch documents.

The interactive document – as the name suggests – cannot be generated solely by an automated process and needs the human touch to be completed and produced.

Interactive documents examined

The creation of an effective interactive document requires grey matter, business understanding, and human intervention. The sheer variability and unpredictability of such documents usually prohibits the use of traditional programmable tools. It is true that some interactive documents can be partially automated when there is limited and known variability. In such cases, the user supplied information can be captured through online forms to interact with a document template hidden somewhere in the document system. This can work well for a personalised catalogue, a letter inviting a customer to supply specific information or even for assisting in the production of customised document packs.

However, not all customisation tasks can be automated. Selecting, resizing or rotating an image, editing and applying cosmetic changes to a paragraph cannot be done without a graphical display. Thus some sort of WYSIWYG interface is required to allow the user to engage in the creation of the interactive document.

Key requirements of the interactive document

Interactive documents are best built in a two-step process. First, an author creates a document template, providing as much pre-defined material as possible. In the creation process, the author also applies personalisation rules that will determine and drive the end user's role in creating documents with the template.

Personalisation can be applied to pages, sections, paragraphs, images, logos, variables, etc. There is no restriction to what the interaction may cover, from content (text, images and data), layout (margins, fonts, positioning of any component) and even production options (paper type, size, orientation, colour or black and white printing, simplex or duplex imposition, etc.).

Of course, personalisation options also cover what is **not** to be personalised or modified and therefore will remain fixed. Equally, personalisation may require some degree of control and/or constraint - maybe a font can be changed but only within certain boundaries (font type, size, bold, italic etc). Perhaps a paragraph can be optionally selected but not changed or edited. An image or logo can be rotated and zoomed out but cannot be zoomed in beyond its original resolution to guarantee optimum print quality. Furthermore, personalisation may be role based with more experienced staff having greater editing privileges than junior staff or new starters for instance.

The second step of building an interactive document is completed by the business users, those individuals who will engage their knowledge, experience and grey matter to bring the document to life – and enhance the customer relationship. Users apply personalisation rules according to their profile and rights, and will create the final document that may be produced for any number of recipients. Also, the personalised template needs to be associated to a list of recipient(s) and the necessary data, if applicable, to create the final documents.

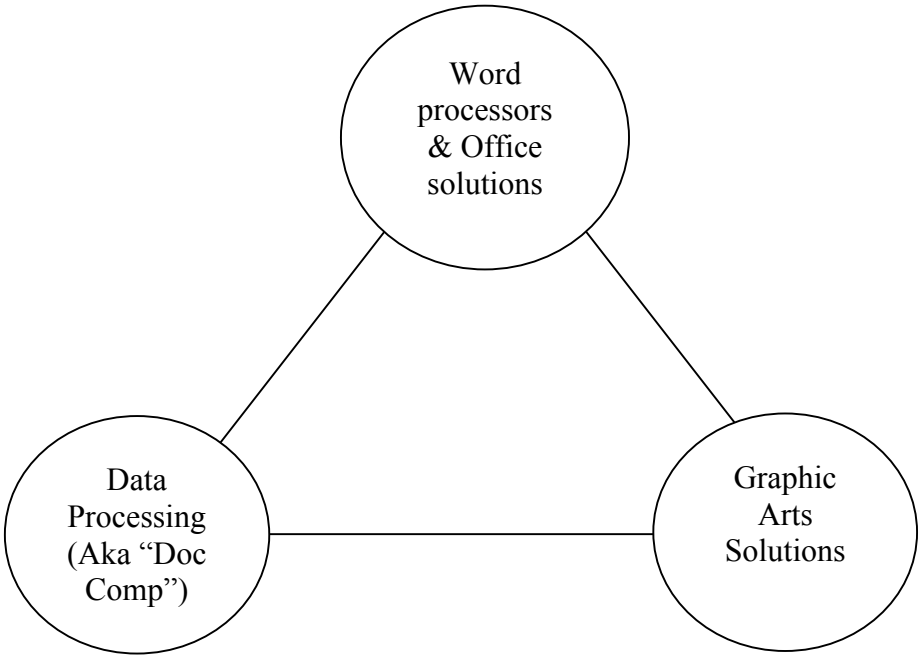
Finally, the system should allow for immediate or deferred production to take advantage of existing production capabilities such as printer capacity, mail sort discounts, automated fulfilment, automatic capture of the documents in the archive and/or the CRM systems, etc.

Solutions at hand

There are a number of ways organisations address their interactive document requirements. Next let's explore the tools available, once again classified into three different tool types as follows:

- Word processing tools
- Graphic arts tools
- Data processing tools

I represent these in the diagram below. There is a certain amount of overlap between these individual tool types. For instance, current graphic arts solutions can manage an amount of variable data. Word processing tools can handle images to a certain extent and data processing tools can handle image and text. However, I do not believe that any one tool set fulfils the specific needs of the interactive document. Let's examine each sector individually.



Technologies for interactive documents

The Word Processor solution

Traditionally and perhaps historically, interactive documents have been managed with the help of PC based word processors. We have all used MS Word® or equivalent to tailor company supplied templates and generate a piece of correspondence that eventually gets printed and sent to a customer. Although this should be a simple operation, experience demonstrates that the number of templates in circulation in any reasonably sized company is very high, that no one knows exactly how these templates are being used, and no one knows how to manage them properly.

Word processors are impaired by their very strengths: a word processing solution is often very simple to use and can be accessed by almost any computer user. Editing and changing documents is easy and interaction with a document template is almost self-explanatory. Yet this flexibility is married to a lack of control, traceability and automation.

Business users may create as many document templates as needed but no system prevents users from doing pretty much what they want. Anyone can change the appearance of the document, change fonts, colours, margins, logos, delete or add components as they go along. More importantly, there is no easy way to guarantee that the document content is a true and reliable representation of the business relationship with a particular customer.

Moreover, on their own, word processors cannot support document template repositories, version control, workflow processes for collaboration, validation and reusability, and certainly cannot enforce document capture in digital archive for CRM purposes. While solutions exist to automate production and fulfilment (e.g. hybrid mail), such solutions do not address content and presentment.

In the modern age of customer volatility, corporate rules, compliance, initiatives such as “Treating Customers Fairly”, branding, reusability, control and workflow management, MS Word® and the likes offer no reliable solution for interactive documents on a corporate scale.

The Graphic Arts solution

The world of the graphic arts has taken on the challenge of introducing variable information in what has traditionally been a field of static documents produced in high quality and volume.

This industry is now ready to accommodate variability thanks to a number of key technological developments. Hardware now offers complex image management, colour printing at viable costs, high quality, high throughput and the ability to process different pages in the same print stream which is the nature of interactive documents (images, text and data). New formats have been created to accompany the introduction of variability (PPML/VDX, VIPP, VPS, JLT, etc.) and naturally, applications and the technical tools of the trade have followed.

Graphic arts solutions are powerful technical solutions, designed for skilled users who maintain a thorough control of their software and hardware environments. The software solutions in place have naturally evolved to support the introduction of variability in print and can now offer some interaction with the end user.

Most applications try to tackle the issue of automating what used to be adjusted by the specialist. Variability ranges from a simple image swap (same resolution, same size, same location, same format but different content) to a more complex total rearrangement of the document. For example, variable text, or the inclusion of variables in a text block, means more or less room on the page and therefore

more choices. Should the image next to it be resized? Should the font be a little larger? Should the line spacing be increased? Should the margin be a little wider?

As these solutions grow in complexity, they increasingly need highly trained specialists to develop and deliver output. There is always a fair amount of to-ing and fro-ing between the specialist and the end user before a document is finally available. Typically the finished document mainly contains graphical components such as images and a relatively smaller amount of text and even fewer volumes of variable data, usually limited to customer name, address, product code, preferences, etc.

The finished application can be one of two sorts, often incompatible with one another. Either the finished design is to be personalised through data - and all a user can do is to supply the correct data - or the document is a template that can be customised on screen and printed once at the end of the personalisation process, offering no way of producing it in larger numbers.

To our knowledge, no graphic arts solution can offer the simple three-step way of creating a new document:
Step 1. Select a template
Step 2. Personalise the template and save it as a document (or new template)
Step 3. Attach a list of recipients to create the documents based on that template

Graphic art applications are often driven by marketing requirements and as such, these solutions rarely support an end-to-end business process. Integration into the customer or business process is therefore left to other mechanisms outside of the capabilities of such tools, heavily impacting technical integration effort, deployment and maintenance.

It may be a cliché but the very nature of the Graphic Arts industry is to provide eye-catching applications to the potential buyer and therefore have little to offer outside of this remit. It would not be possible to build text-heavy applications with such tools, such as contract management, or a complete letter writing system. Graphic Arts applications therefore often remain excluded from the formal business process world and are managed as something necessary but uncontrollable and/or outside the end-to-end business processes.

The Data Processing solution
Data Processing solutions (aka "Document Composition") have been developed with the primary objective of replacing complex print programs that dealt with vast amounts of variable data – in most cases transactions.

Document Composition solutions have a long history of ever increasing features and functionality, the largest coverage of applications, platforms and output formats and of course the highest throughput capabilities. Though these solutions have largely been used as high volume batch solutions for complex transactional documents, most have developed a simpler access for the non-technical user's interactive requirements.

However, the base product remains a highly technical solution, primarily designed for highly skilled users. Though these tools were not designed with the interactive document in mind (even the latest generation tools), they are probably our best candidates for delivering the interactive document. Indeed, composition solutions have nearly all it takes to tackle the challenge. They support the necessary controls and they can manage the content, the presentment and the underlying processes. They support business process interoperability and can be reasonably well integrated within existing environments.

Nevertheless, I believe they still fall short of a truly viable interactive document solution. These solutions have built their interactive document solution as a separate product that 'bolts-on' to the core composition product. And herein lies the problem facing these solutions.

To take advantage of these solutions, a document needs to be created. One still has to use the base product to prepare the base layer, aka the document template. Then you have to use the bolt on to add the interactive component. Both interfaces are highly technical and cannot be used without specialist composition programming skills and a thorough understanding of how these solutions manage data. Simply put, the typical business user will never be able to create a document template using these solutions. Rather, they will remain dependent upon the specialist skills of the IT department.

Now, we all know that the relationship between business users and the IT department is not an easygoing love affair. The different agendas, the disparity in objectives, the totally opposed ultimate responsibilities in the enterprise life undermines a healthy and productive relationship.

The IT department have a responsibility to provide stable and reliable content, presentment and delivery mechanisms. Often, change cycles require regression testing and changes take a significant amount of time to be effective.

On the other hand, businesses *expect* ongoing changes in the market place. This dynamism and agility must be supported by interactive documents, and therefore will not be available if the traditional document composition approach and methodology is applied to these documents.

The document composition tools are perceived by the business users as what they are – something too complex for the task at hand. Interactive modules are a noble attempt at providing a simplification layer but the solution fails simply because it remains too complex to be usable by end users. Because business users need fast turnarounds, they end up either outsourcing their work or turning to what seems much easier and which they control, namely MS Word® - falling straight back into the problems described in the section on word processors.

What now?
Each group of solutions admittedly offers some benefits for the interactive document, but each has its shortcomings too.

Interactive documents, by their very nature, support-changing business conditions in a challenging market and must adapt to specific aspects of the relationship with individual customers. If the process is too complex and time consuming, it will not be followed. I have seen a lot of products where ease of use is at the heart of the demo. Going through the personalisation options is usually easy and straightforward. When I ask to see how the original template is created, I cannot imagine non-technical business users embarking on the task without a solid programming background.

This hurdle, although a major one, is alas not the only one. There are many others challenges left unresolved by the existing tools, particularly solution deployment. Even when the solution does not require a specific fat client license, thin client support often needs the thorough control of the user's environment to install browser specific plug-ins – quite impractical for independent business federations (IFA's or franchisees) or any end user falling outside the reach of IT infrastructure control. What about workflow issues? What about seamless integration - before and after - in the business processes? What about version control? What about reusability of user specific object repository content? Of common object repository content?

Conclusion
It is becoming increasingly clear that none of the current players will bring a desirable solution to interactive document challenge by tweaking existing tools. Rather, it is time for a paradigm shift! I believe that the winning proposition is the one that presents an end-to-end solution that can truly fall under the direct control of the business users. This both from a template creation and personalisation perspective.

A true interactive document solution needs to be simple, and one that business users can use by themselves for themselves with minimal IT or third party involvement. Features and functions must be kept simple following the 'good enough' principle. Interactive document solutions cannot replace any of the existing tools, MS Word®, Graphic Arts or Document Composition tools. Equally, a viable interactive document solution cannot come from any of these worlds.

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