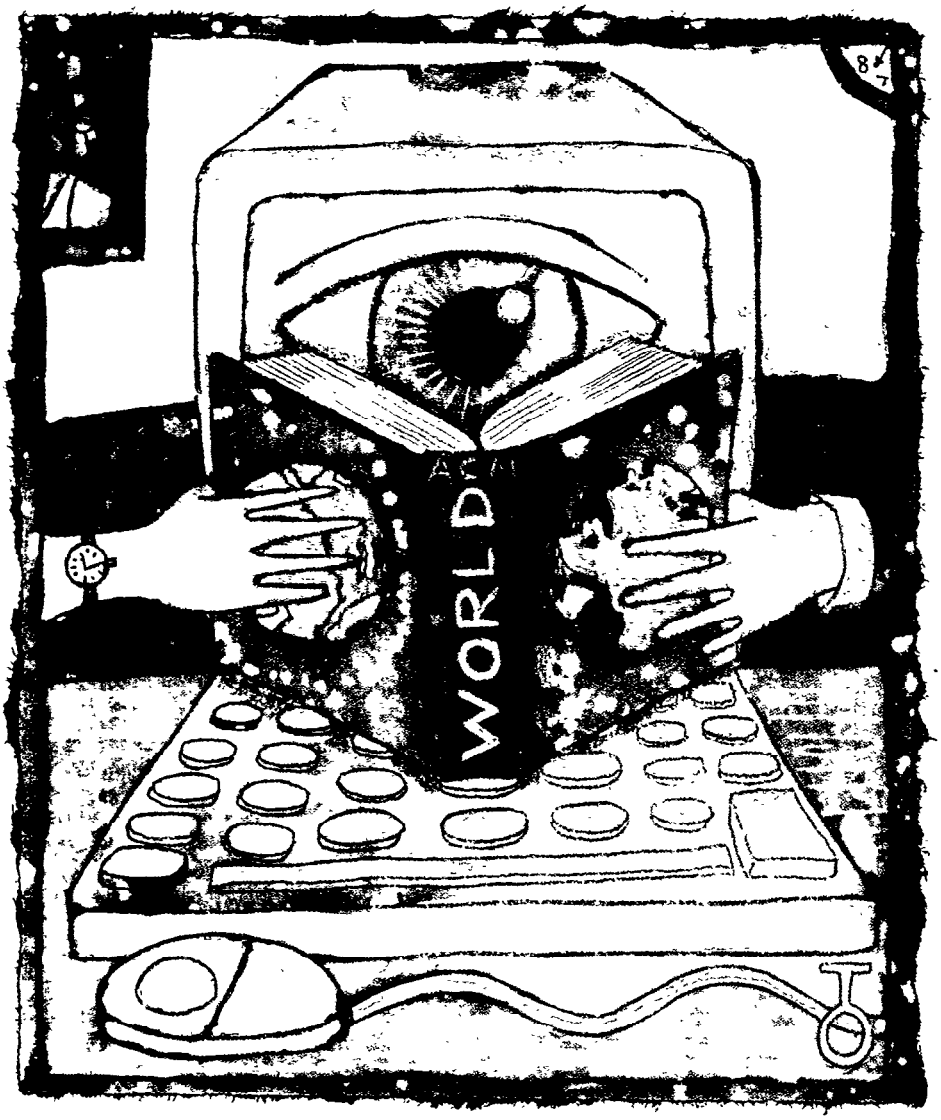
ROB HAIMES

Document Interface



all illustrations: Teofilo Olivieri

Documents are interfaces, used to access and navigate through collections of information. This is as true for business documents, the focus of this column, as for newspapers, magazines or books. But historically, the specific information presented and the relationships of content within the document were "fixed"—established by an author or publisher. New documents are variable. They represent a window into a *process*, and can evolve as the process does.

Businesses do a lot of publishing. DEC, in its prime, was said to be the largest publisher in New England. Can the various kinds of communication that corporations engage in be considered publishing? Are memos and forms as much publications as annual reports or manuals? I'd argue that businesses would benefit from thinking this way. Publishing is about organizing information for easy access, and giving it visual and structural integrity. It's also about matching the appropriate information to a specific set of circumstances or needs.

Within most businesses, publishing is thought of as a "packaging" function—similar

to what Boyarski and Buchanan, in their article [*interactions* 1.2], called "styling." Designers are handed a finished idea and asked to "mold a pleasing cover." If information is to be more useful and if documents are to play a strategic role, publishing needs to become integrated into the business process. Documents need to function better as interfaces, as access points that help "users" navigate through repositories of content and extract what they need in an easy-to-use form. The challenge is to put readers in control of documents while still controlling how information is experienced, and while preserving the corporate identity.

Publishing will become highly automated when supported by extended infrastructures that integrate publishing and business information technology. Publishing *is* a collaborative process, but built on an integrated framework this collaboration can extend well beyond traditional publishing domains. Content originators can be located anywhere within geographically dispersed organizations, or in separate companies that need to orchestrate what they do in pursuit of some common goal. A wider range of people, including readers, can influence what is published, when, to whom and in what form. Boundaries already have blurred within the publishing process. Design and production no longer are separate functions. Craft used to determine *where* something was done but with automation this is no longer the case. Once optimized, publishing can become almost a background process.

Automating publishing requires separating form from content. If this is done, content originators can focus on creating or compiling content, while designers build flexible "containers" into which that content can be poured. Content maintained at the "source" can be relied on to be current and accurate. Structuring content (tagging it so it "knows" what kind of content it is, and how it relates to other content) enables it to be routed into documents automatically, and easily formatted using rule-based templates. With content stored as objects, these "intelligent" templates can handle variations (like copy length or image proportions). Pages can be assembled in standard ways, but with an appearance of variability or design.

Some examples might help. Catalogs are one kind of business document (and a range of other business publications function like catalogs in that information is compiled from multiple sources). Catalogs tend to be complex, are frequently published in customized versions, and content gets reused repeatedly. They're also well suited to electronic delivery.

Catalog publishing depends on extended relationships. In retail catalogs, for instance, marketing (not design) decides what's on the page, the priority of each item, and how products relate to one another. In industrial catalog publishing, the product information sources can be sometimes hundreds of outside manufacturers. With effective links back to product manufacturers, publishers can better cope with product volatility—if the relationship is tight, information can be structured and changes can be flowed directly onto catalog pages.

Catalog publishing is an example of how a business process can drive production. Catalogs are a company's contact point—its interface—with the marketplace (and often its sole source of revenue). It's an advantage to have the publishing process be more responsive, to get the presentation right (so it establishes the function of the document and supports the identity), to make the content selection relevant and, most important, to get the customer involved.

Publishers are linking marketing databases with publishing systems so customer feedback can be applied to the process. Catalogs are being assembled on-the-fly based on audience profiles. "A back-to-school catalog for the Southeast region" can be sufficient input to generate finished pages. As more information is captured during transactions, the profiles get refined.

R.R. Donnelley, the largest commercial

printer (and a significant developer of publishing technology), has been offering this service for a while. One of its customers went from producing two full-line catalogs a year to almost 200 niche-market and specialty versions. The production cycle shrank from 12 weeks to 7 days. What Donnelley calls "closed-loop digital marketing" makes possible literally direct response to shifts in the market.

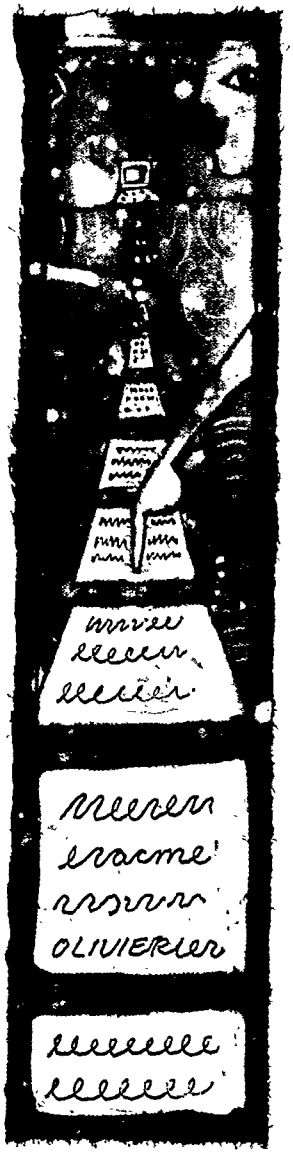
Marketing and MIS databases are filled with background information, used by sales, support, distributors, etc., but not available to customers. Certainly, putting it in published form—giving it visual and structural integrity—allows it to serve more effectively as an inhouse resource. But making it accessible to customers can expand a publisher's role from product supplier to information provider. Catalogs can be perceived as valued sources of current information. For instance, one lab supply company's catalog is used as a college text.

Customers can be more involved, and catalogs more useful, once delivery is electronic. While a publisher can still customize the product mix and design, the electronic catalog is essentially "self-versioning"—the specific product categories and how products are viewed can be up to customers. An electronic catalog is an interface to far richer information, and more complex relationships of information, than can be incorporated into a printed version.

The most commonly suggested features of electronic catalogs, like product demos and color selection, are useful but minimally interactive. Examples of more integrated capabilities, from either existing or planned electronic catalogs, include: prompting to establish selection criteria or to narrow selection focus (if one item is selected, the system suggests others that should be considered or might be required); assembling components to fit some given requirements (such as space, capacity or budget) or with the system providing related requirements (like hazards, storage or transport); extracting product specs or CAD models from a catalog to see how components work with a proposed design or so a design can be adapted to fit available components; and, providing personalized cross-referencing capabilities, like "post-its," or "dog-earing" pages. In addition, an online electronic catalog can offer real-time ordering and updating.

A catalog can be integrated into a *customer's* business. One surgical equipment supplier lets customers extend the catalog, inserting their own content (reference images of specialized instrument sets) into a catalog that's delivered as a database loaded onto customers' systems. A dental equipment manufacturer's catalog is delivered as a module of its office management software. Transactions become part of other work—an inventory generates orders.

Perhaps a better example of publishing and business blurring and of documents as windows, not just to information, but into the business process, is the work of Siegel & Gale. A design firm based in New York (and currently the world's largest), Siegel & Gale analyzes how the organization of information corresponds to the way a company is structured. This goes far beyond styling. Siegel & Gale's view is that documents not only compliment products or services but *become* the product or service from the customer's perspective.



Through what it calls "document-based reengineering," Siegel & Gale helps clients construct document infrastructures that support customer relationships and coordinate inhouse activity. It takes into account all groups either creating content or using information received back from customers after they've "interacted" with a document. Content is integrated across the organization and stored as objects structured to incorporate "business process logic."

These documents aren't static—they're audience-driven and can be revised easily as a business changes. Siegel & Gale uses documents as tools to rapid-prototype new business opportunities. Clients mock up the documents required to support a proposed service to determine its viability and "ease of use" (from both a business and customer perspective). If the document makes

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sense, it's easier at this point to go back into the organization to define, for instance, the personnel or applications required, or how the database needs to be restructured.

Electronic documents provide a "live" interface for customers, who define what and how content is received. The system establishes how various conditions interrelate, manages the transaction, offers other information of potential interest, guides the customer to related product offerings, and maintains the corporate identity in the "finished" document.

The various groups involved with transactions are integrated within the system and represented by the document (in the above case: customer service, systems, marketing, product development and corporate communications, respectively). The relationship of departments is explicit in how information is linked and presented. For the customer, the document is a "snapshot" of the business, accurately and concisely representing the organization.

This approach helps both creators and users of documents. In many companies, a corporate communications department manages what information is published and how corporate image is conveyed, but typically only for high-end documents—annual reports, promotional collateral, ads, etc. What most customers see day-to-day—forms, documentation, training materials—is produced throughout the corporation, with no central control over content or presentation.

So what does this imply for designers? Am I describing interaction design or graphic design (or even system design)? What skills will be needed and why are current views insufficient?

I'd suggest that the skill set required incorporates both graphic and interaction design, but that neither discipline quite understands this. Graphic design does involve organizing content relationships, which do correspond to relationships within the business process, but most designers don't perceive it this way. Worse, trade school-style teaching of print-specific applications now seems to constitute teaching design, despite developers moving away from print to interchangeable process/media "metaphors" and customizable workflow engines.

At the same time, interaction designers could learn from graphic designers about how design gets tested in the marketplace. (This is one way in which HCI and video game design *will* be more alike, though it wasn't specifically addressed at the CHI '94 conference session.) Whether a company is perceived as easy to do business with, or whether what they offer is considered useful (or informative or entertaining), may depend on how well its user interfaces—its documents—are designed. Difficult-to-use interfaces won't be tolerated just because of a commitment to, or an investment in, some platform or application.

But how documents can be made to correspond to underlying processes and to a greater extent involve the user is an interesting design problem, one that both interaction and graphic designers are reasonably well-equipped to tackle. Aaron Marcus, in his column [*interactions* 1.1], wrote that, "User interfaces will become publications...." I think documents already *are* interfaces and that we need to consider the process on both sides of the window.