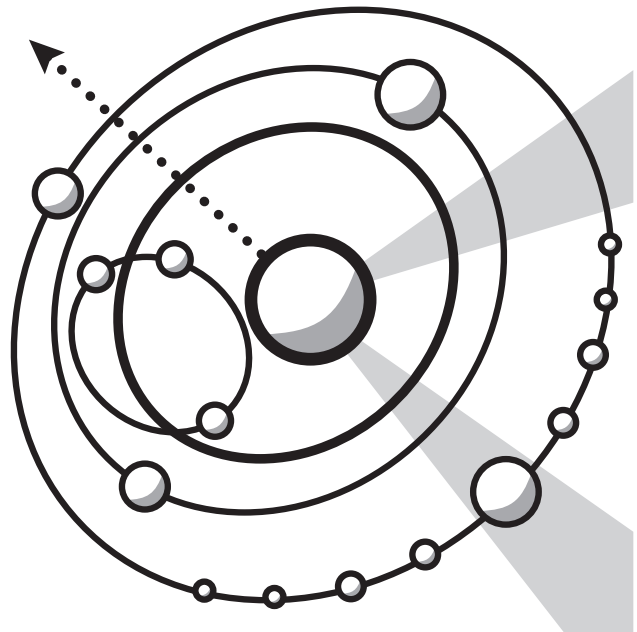


Barry Chudakov

Making the Page Think Like a Network



Illustrations by Eric Felberg

*This is the third in a series of articles
excerpted from*

A Blinding Glimpse of Everything:
Designing Information for
the Multidimensional Web

Introduction

A basic hurdle to making the page think like a network is the page itself. The page is the natural form or container for the alphabetic matrix. This form also has inherent drawbacks.

This article reviews the basics of adding a unique style of Information Balcony to any kind of information. I call this type of information overview Orbital Information Management Maps, or OIM². Using OIM² creates *multiple, dynamically changing perspectives*. These maps remedy some of the page's drawbacks while greatly enhancing the depth and usability of information.

Alphabetical and Orbital Information Compared

Information on the Web—and in other digital environments—behaves differently than information on the printed page. To be truly effective, our formatting should account for this difference. ▶

FIGURE 01 shows a typical Web-based alphabetical information presentation. This is a home page from the About.com Web site.



▶ Today information is generated omnidirectionally. However, like time's arrow, the alphabetic matrix goes only in one direction at a time. The alphabetic matrix actually hides information's relational powers. Conversely, seeing information as *objects* revolving in *orbits*—circular, interactive, interdependent, interconnected—creates a much more effective conceptual framework for information.

An *object* can be any thing or any body of information. An *orbit* is where the object lives and moves. In the same orbital diagram you can mix things and bodies of information because, for the purposes of information management, they function identically. For example, in an orbital diagram you could have a series of hotels (things) and also hotel pricing, access, geographical, and marketing data (bodies of information). Each object can have its own orbit.

Figure 01
Current home page for About.com.

Now view the same information presentation in an orbital format. Note that orbital diagrams can be designed in multiple configurations. In FIGURE 02 we see an example of a gyroscopic design, but other configurations can be employed.

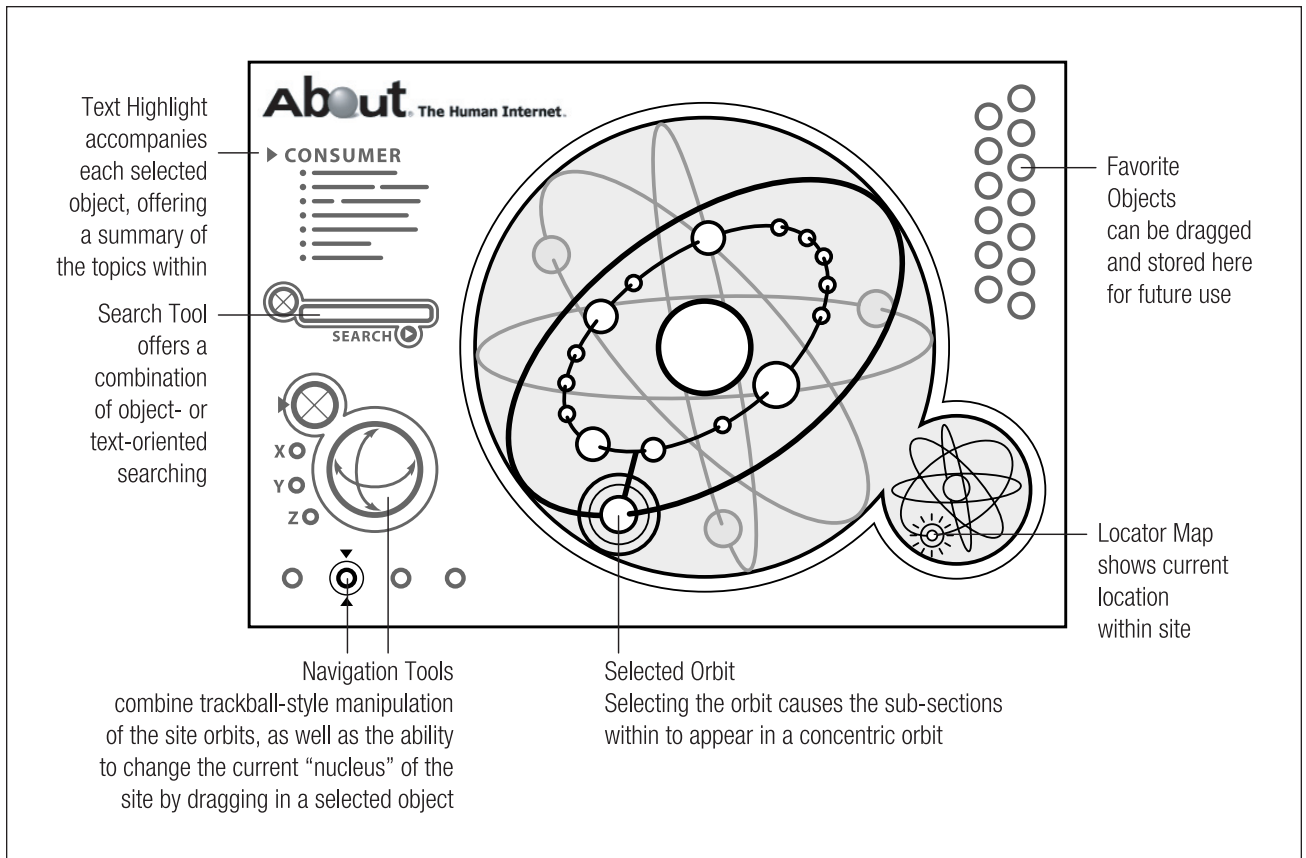


Figure 02
 One possible orbit-based version of the About.com home page.

Primary menu topics are arranged as objects moving about a user-defined center rather than as an alphabetic list. Note that in this interface, we have incorporated an OIM² window. In typical window fashion, it opens up into an existing environment. Here are a few ways to compare and contrast the two information presentations:

- Note that, for the most part, the organizing principle of the current site is alphabetic.
- The organizing principle of the orbital site is configured by the user topically, conceptually, and in other ways.
- On the current site there are a few news items posted at the top of the home page and a Top 10 list down the right side.
- These news items and Top 10 list would still appear below the (transparent) orbital balcony; however, highlighting any topic would provide the user with an array of orbital connectivity providing context, navigation, location, and relational support.
- On the current site there is a search feature (Find It Now), Resources and Partners. But otherwise, the primary means of relating to this information is to proceed from A to Z.
- The orbital site is built relationally so that you see how other information is related at a glance: Relational information is on or connected to the orbit you're viewing.
- The current site gives little or no guided navigation around the site.

- The orbital site is designed for motion; a trackball provides navigational guidance.
- The current site does not allow the user to personalize the information, provide a sense of context for the information, or suggest that another context might be more useful.
- Information presented in orbits can be viewed from various angles—as though you looked at the Earth first from the moon, then from Mars, and finally from the middle of the Milky Way. In other words, orbital views give you topsight, insight, oversight, and what we might describe as *surround-sight*. This personalizes information and provides a wealth of context options.

It is tempting to view these home page comparisons and choose sides. You cast information either in the alphabetic matrix or in objects and orbits. However, here is where the Information Balcony shows its utility. We can have both the alphabetic matrix *and* the management of that matrix; orbital maps' transparency allows us to see content and management of that content in one view.

OIM² does not repeat the functions already presented in words. It gives conceptual oversight and mobility to information. Facts in motion is a fundamentally new way to consider information: Information is not static, but dynamic. (On the Web we're never only in one place; we're connected coming and going.) We see this today on news channels and sports broadcasts, with the information crawl at the bottom of the screen, and on the Web with pop-up screens. But this is just the beginning.

Note that in FIGURE 03 there are a number of ways to navigate through this information. The information is personalized to you (here, you are "ME"), and all objects are related by their orbital configuration. You can see at a glance that it is virtually impossible not to be related because the object/orbit configuration is itself a relational statement. Moreover, because orbits exist in relation to other orbits, you see relatedness by both highlighting and concentric orbital configurations.

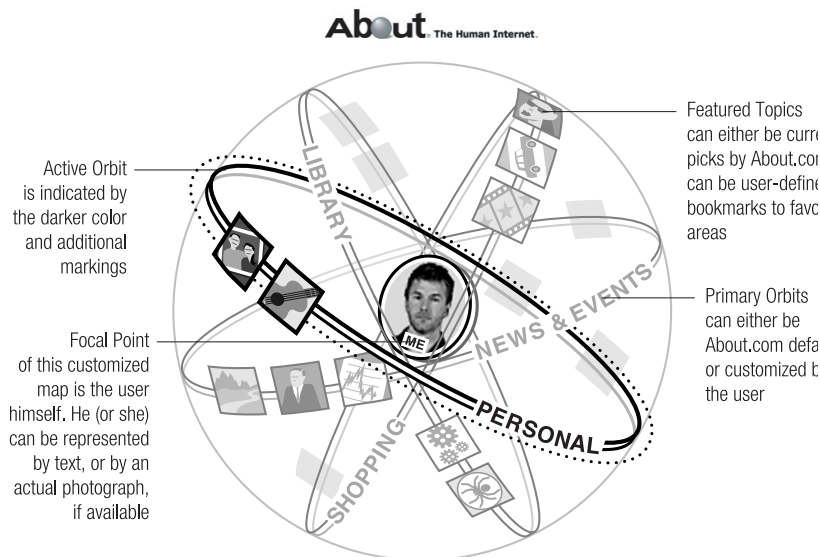


Figure 03

Here the focal point of this customized map is the user himself. In this PERSONAL orbit we would typically find personal documents, graphics, audio files, and so on. Note that you can still see other orbits on the site; the active orbit is indicated by a darker color.

Many types of information can be enhanced by visualizing information as objects operating within orbits. For some clients (in this case, the Disney Corporation), we would graphically represent perceptions of the guest experience to look like the orbital diagrams in FIGURE 04. These OIM² use orbits presented in a spirograph. (These OIM² were designed by Steve Johnston of 2820 Design.)



Figure 04

These are three views of the same information for the Disney Corporation. The difference is that the information is viewed from different perceptual centers.

Orbital Maps Change Information Comprehension

Perhaps the most surprising consequence of designing information in orbital configurations is that we suddenly perceive the same information differently. Some information we understand using only words; other information is best experienced using words+objects+orbits. In fact, we realize some things—often the most important things—are hidden from view by using only an alphabetic matrix to present information. The way to prove this to ourselves is to jump in and experience information in more than one conceptual framework.

In short, to change the way we perceive information we must change the way we present that information. Until it is seen, this change of perception will frequently provoke more skepticism than belief. This is so, despite that fact that...

1. Our inherited mental maps are no longer adequate.
2. The amount of data is overwhelming our current alphabetic presentation models.
3. The amount of data is increasing rather than decreasing.
4. By visualizing the same data with new tools, we will enhance both our understanding of that data and its usability.
5. By visualizing data, key stakeholders can better understand and use the information.
6. The ultimate utility of information relies upon its ability to establish or reveal relationships. Current presentation models lack this ability.

Three other factors take our understanding to new levels so that the perceptual shift we are envisioning becomes clearer:

1. Staged or stepped information orbits capture the layered, interconnected, simultaneous nature of information movement and management. This type of information map enhances connectivity and integration and is in stark contrast to the flat, linear, sequential dynamic of today's typical information presentation.
2. In a fashion similar to the movement of our solar system, information orbits capture the time-and-change dimensions of information flow. At the same time, as they set up relational dynamics they also capture the three-dimensional depth of the information.

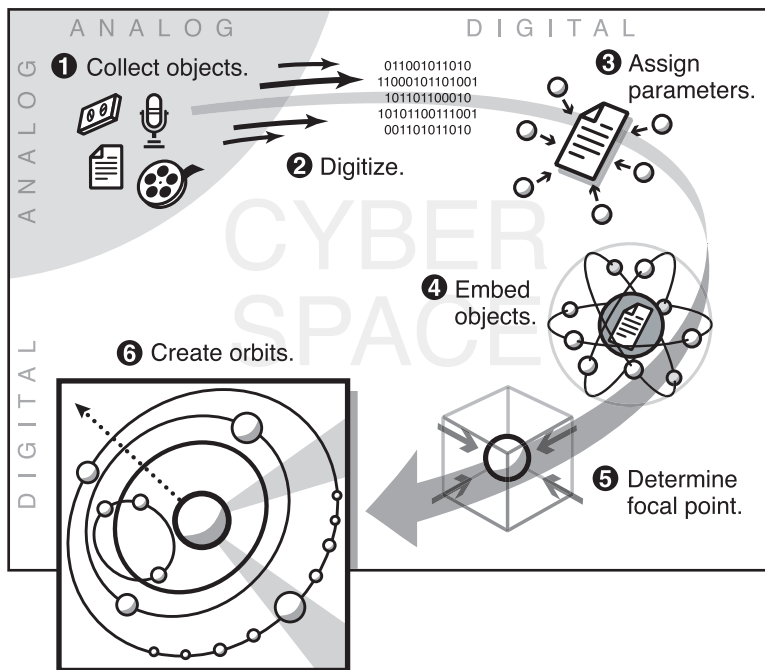
3. While visualized similar to our solar system, these information orbits ultimately behave as neural networks. These information orbits can be expressed in levels of density from 1 through n. At each level of information density, the mapping function is recapped, appropriate to the particular stage. ▶

How to Create an Orbital Information Management Map (OIM²)

Orbital Information Management Maps (OIM²) are designed to provide intuitive ways of understanding and using dynamic information. These maps allow users to conceive, organize, and perceive information *in motion*.

OIM² can be considered as a dynamic and multidimensional conceptual, organizational, and perceptual framework. It does not replace the alphabetic matrix; it enhances it. OIM² is designed with utmost simplicity, employing two basic elements (see FIGURE 05):

- **Objects**
- **Orbits**



Step 1:

Collect Information Elements: These Become Objects

Break down information elements into any convenient or necessary way of grouping your subject matter. For example, any or all of the following may be an object:

- A topic such as pediatric rheumatoid arthritis
- A page from *Arthritis & Rheumatism* (the official journal of the American College of Rheumatology)

- ▶ “An Artificial Neural Network is a system loosely modeled on the human brain. The field goes by many names, such as connectionism, parallel distributed processing, neuro-computing, natural intelligent systems, machine learning algorithms, and artificial neural networks. It is an attempt to simulate within specialized hardware or sophisticated software the multiple layers of simple processing elements called neurons. Each neuron is linked to certain of its neighbors with varying coefficients of connectivity that represent the strengths of these connections.”

From Daniel Kerfors, *What Are Artificial Neural Networks*, St. Louis University School of Business Administration.

Figure 05
Creating an Orbital Information Map can be conceptualized in six steps.

- An article in this journal: “Etanercept Versus Methotrexate in Patients with Early Rheumatoid Arthritis: Two-Year Radiographic and Clinical Outcomes”
- A rheumatology book: *Raising a Child with Arthritis: A Parent’s Guide*
- A patient audiotape: “How to Keep an Arthritis Journal”
- A CD-ROM on primary care for the rheumatology patient
- Photos of children’s fingers exhibiting Raynaud’s syndrome
- A graphic of the forms of scleroderma that affect children

Step 2

Digitize Those Objects

Once digitized, the information can be arranged and rearranged.

Step 3

Assign Parameters to the Objects

Assigning parameters is essentially tagging the information for later use. Assign tags that are readily understandable for your purposes. These tags can be placed within a document—at various points across a page or pages—or they can be used to group objects.

Step 4

Embedding Objects

Loosely related objects can be configured to create an embedded object (see FIGURE 06).

Contextual information is evolving to become embedded information. Today context defines the purpose and meaning of most information. Soon the context itself will become virtually invisible as the information becomes embedded in a myriad of products and services.

Here are six points to remember when creating the embedded object, which is essentially a new way of relating and coordinating information:

1. View information as a nexus, not only as a headline and story.
2. As a nexus, the information will attract *relatedness* like a magnet.
3. Use information *relatedness* to sort and organize the information.
4. Organize tactically: You may not see all the *relatedness*, but use what you can see.
5. Loosely related information can be compressed or embedded to create an object (see FIGURE 07).
6. The object should retain original formatting as much as possible.

Step 5

Determine Your Focal Point

A focal point is not the same as a point of view. An Orbital Information Management Map is a solar system. You can start anywhere and go in any direction. In this configuration,

► “The web [of change] can be imagined as a gigantic and ever-growing sphere in space and time, made up of millions of interconnecting, crisscrossing pathways, each one of which is a timeline (a series of points that represent moments when someone of something acted to affect that sequence of events).”

Source: James Burke, *The Pinball Effect*.

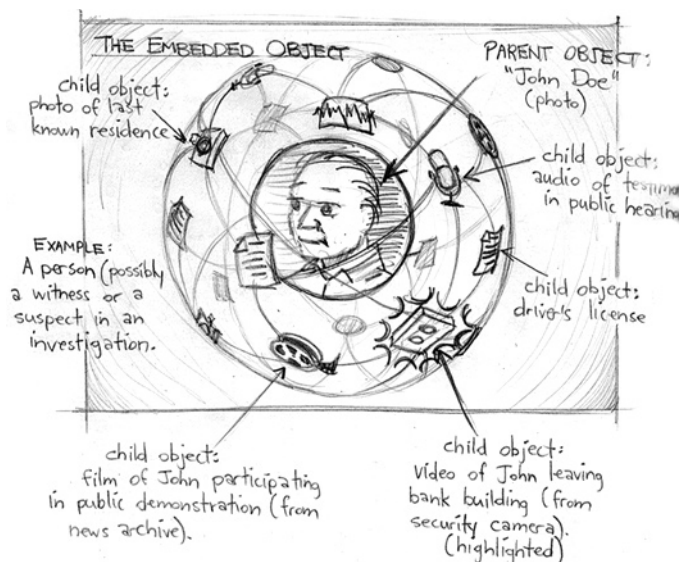


Figure 06
Sketch showing the utility of using the embedded object to encapsulate a person in a criminal investigation.

you can have multiple points of view. But you may want a viewer to look over your shoulder and see what you're seeing. That focusing of attention is the focal point. It is not fixed; it is a design protocol for convenience's sake.

Step 6

Send Your Information into Orbit

Objects naturally follow certain user and conceptual pathways. Consider these as orbits. Baseball gloves, for example, are used by baseball players. So, a Rawlings catcher's mitt (object) naturally lives in the baseball glove (orbit) and baseball player (orbit). Oranges (object) naturally live in the fruit (orbit) and citrus (orbit). Note that any orbit may attract a wide variety of objects; objects may live in a wide variety of orbits (see FIGURE 08).

Multiplicity wasn't merely a clever movie. It is a central dynamic of information itself.

How to Reformat Web Sites to Create OIM²

Reformatting Web sites to create an orbital configuration for the information can be accomplished in six steps:

1. Take all information off the site.
2. Lay out information in separate sections, organized by content.
3. Each section can be viewed as a separate object.
4. Evaluate the information sections for *relatedness*.
5. Design information formatting based on *relatedness* rather than solely as lists or headline and content.
6. Each factor of *relatedness* becomes a separate orbit.

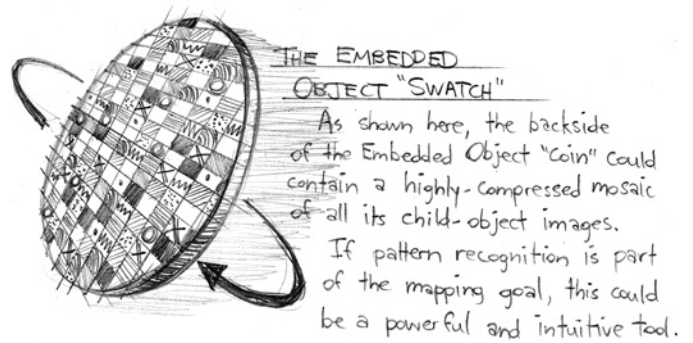


Figure 07
Another graphic way of visualizing the embedded object.

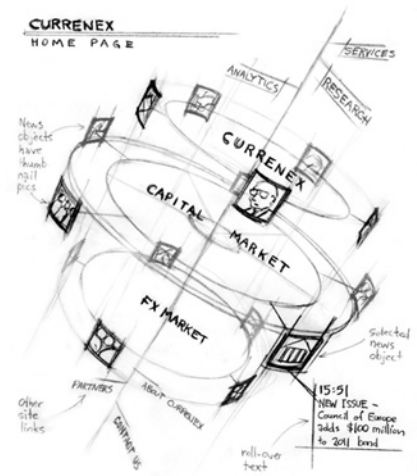
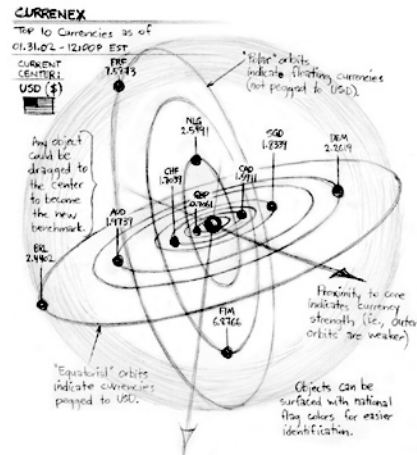


Figure 08
Two early sketches of Orbital Maps for a financial services Web site. The first (bottom) shows the site in a three-dimensional overview. The second (top) shows a way of evaluating currencies in relation to each other.

Seeing Multiple Viewpoints Simultaneously

“The rule, then, if you want it stated that way, is this: Within a given chapter or (at worst) within a given dramatic confrontation in your book, you must maintain the integrity of the viewpoint. That means you stay in the same viewpoint.”

James M. Bickham, Writing Novels That Sell

While explaining how to write successful novels, Mr. Bickham succinctly, if unwittingly, states the alphabetic world view: One point of view at a time, please. While this is undoubtedly excellent advice for the budding novelist, it is less so for the information designer. This insistence on having one point of view is bred into the very cells of our alphabetical heritage. Words and their narratives work this way. Information, and the movement of life and thought that it captures, works otherwise. But until now we have had no conceptual framework to capture and make visible that otherwise.

Orbital views allow concentric or omniscient comprehension: Any orbit may be viewed as the perceptive center. So, in effect, you can view information from multiple viewpoints. You can compare, contrast, and simultaneously hold multiple views. For example, you can view the same information from the perspective of the corporation and the corporation’s ultimate customer. You can view a crime scene from the POV of the suspect, the forensic pathologist, the police detective, and other criminals’ past histories. The number of views is limited only by the number of orbits pertinent to the information. Moreover, you can do all that viewing at once. This simultaneity is a hallmark of the new world of digital information management, and is a distinct contrast to the one-at-a-time nature of the alphabetical viewpoint.

Summary

“As the data in our knowledge-bases becomes ever more rapidly obsolete, it will be less important to ‘know’ the data than to be able to access and relate them one to another ... it is the interaction between data that causes change. The fundamental mechanism of innovation is the way things come together and connect.”¹

¹ James Burke, *The Pinball Effect*

To make the page think like a network, we might start by changing how the page behaves. In this article, I presented the typical Web page view and changed its character by, Trojan horse style, putting it in the belly of another beast. That’s what we’re doing when we objectify information and then put those objects into a new, more useful configuration.

I call this new configuration Orbital Information Management Maps, or OIM². Seeing information as objects in orbits, sitting above the information, enhances information depth and utility.

Today there are many kinds of information maps. And these information maps are becoming more commonplace as we realize the value of seeing our world multidimensionally.