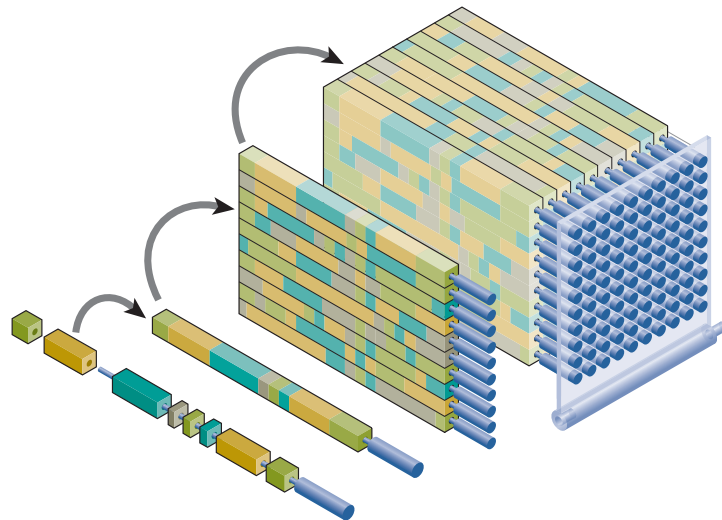


Why Your Ideas Need
Visual Explanation

A Dynamic Diagrams White Paper
by Henry Woodbury, Principal User Experience Consultant

January 2009



The picture-examining eye is the best finder we have of the wholly unanticipated.

Statistician John Tukey (quoted by Seth Roberts, University of California at Berkeley in *Three Things Statistics Textbooks Don't Tell You*, 2005)

Dynamic Diagrams Visual Explanation Offerings

- Diagrams
- Illustrations
- Presentation tools
- 3D Models
- Animations

A springboard for innovative thinking

Innovative ideas, conceptual breakthroughs, and revolutionary plans come about when information is viewed a new way. With its visual explanation practice, Dynamic Diagrams literally provides that new view – whether it concerns a product, a business strategy, a scientific process, or the contents of an online library.

To understand how such things can be explained visually, consider such common visual devices as maps, graphs, and charts. All these tools use visual cues to show context or connections, allowing measurement and comparison.

Cast your eye in a different direction and consider comics, cartoons, and even fine art. Here you find visual devices that tell a story, persuade, and inspire.

At Dynamic Diagrams we use all of these concepts as a springboard for innovative visual explanations that present a wealth of detail without overwhelming the audience. Our visualizations reveal the context, connections, and value of the most complex information and ideas.

Inspiration starts with analysis

The difference between a picture and a visual explanation is the rigor of the analysis. At Dynamic Diagrams we team analysts with visual designers through the life of every engagement. As we gather facts and ideas we exchange verbal and visual concepts to find the one that best works for the data. While always a creative endeavor, there is a strong methodology that drives our work:

1. Define the business goals for the visualization.

The first question is fundamental: why bother? There has to be a definite goal. Is the visual explanation destined for marketing material or an executive briefing? Will it guide project planners or reinvigorate public relations material? We consult with you to develop a firm understanding of your organization and priorities.

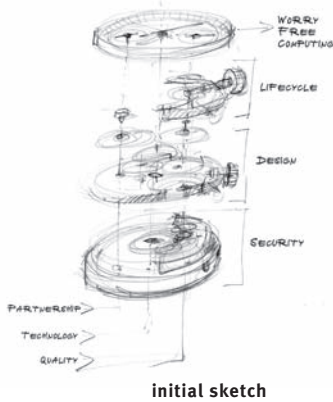
2. Identify the audience and the medium.

To be effective, a visual explanation must target an audience—internal or external, general or specialized. How the audience will encounter the piece—in print or online, small format or large, static or interactive—is hugely important. At the same time we consider how you might leverage the visual assets we create for multiple audiences and formats.

3. Collect all the data.

A visual explanation may be based on raw numbers, high-level concepts, or any type of data in between. We gather and review all the applicable information we can. For data-driven visualizations we make sure the data is complete, accurate, and meaningful. For topical visualizations we review existing work, its organizational context, third party analyses, and more. If a physical product is involved, we want to examine it, even take it apart.

Whenever possible we interview subject matter experts and members of the target audience to gather the most telling details on the topic.



4. Find the narrative.

Stories are memorable. As we analyze your data, we look for the stories it tells. These stories may be quantitative or qualitative, multi-stranded or powerfully direct. By talking and sketching through different possible narratives, we help you consider data correlations, tension points, themes, and resolutions.

5. Napkin sketch.

With the story comes the first pass at rendering the data into visual terms. It is a collaborative effort. Many of our analysts can draw. All of our designers can think. We brainstorm concepts and knock them down. We try out different visual formats, metaphors, indices, and orientations. We may fill a whiteboard or scrawl through a sheaf of paper until we find the right visual starting point.

6. Iterate.

Even with the right story and the right visual idea, we iterate extensively to achieve the highest level of impact, clarity, and intuitiveness. Regular design reviews with clients ensure that data is represented accurately, the right details brought out, and messaging refined for the target audience.



Final presentation

Watch metaphor designed to illustrate Hewlett-Packard engineering principles

7. Animate.

Digital media opens up opportunities for animated and interactive designs. We can build interactive applications that draw from structured data, create three dimensional models that users can manipulate on their own, or increase the effectiveness of a fully realized visualization with additional animations.

Leveraging the “aha” moment

The mark of a successful visual explanation is what we call the “aha” moment. This is the moment when the people you want to reach take a look at the visual and get drawn in. They nod. Or even applaud. They “get” it.

The “aha” moment creates leverage to get things done:

- Improve executive decision making
- Streamline project implementation
- Communicate the value of complex products and services
- Create comprehension and buy-in from different audiences
- Show things that cannot be shown any other way
- Improve operational efficiency with better communications

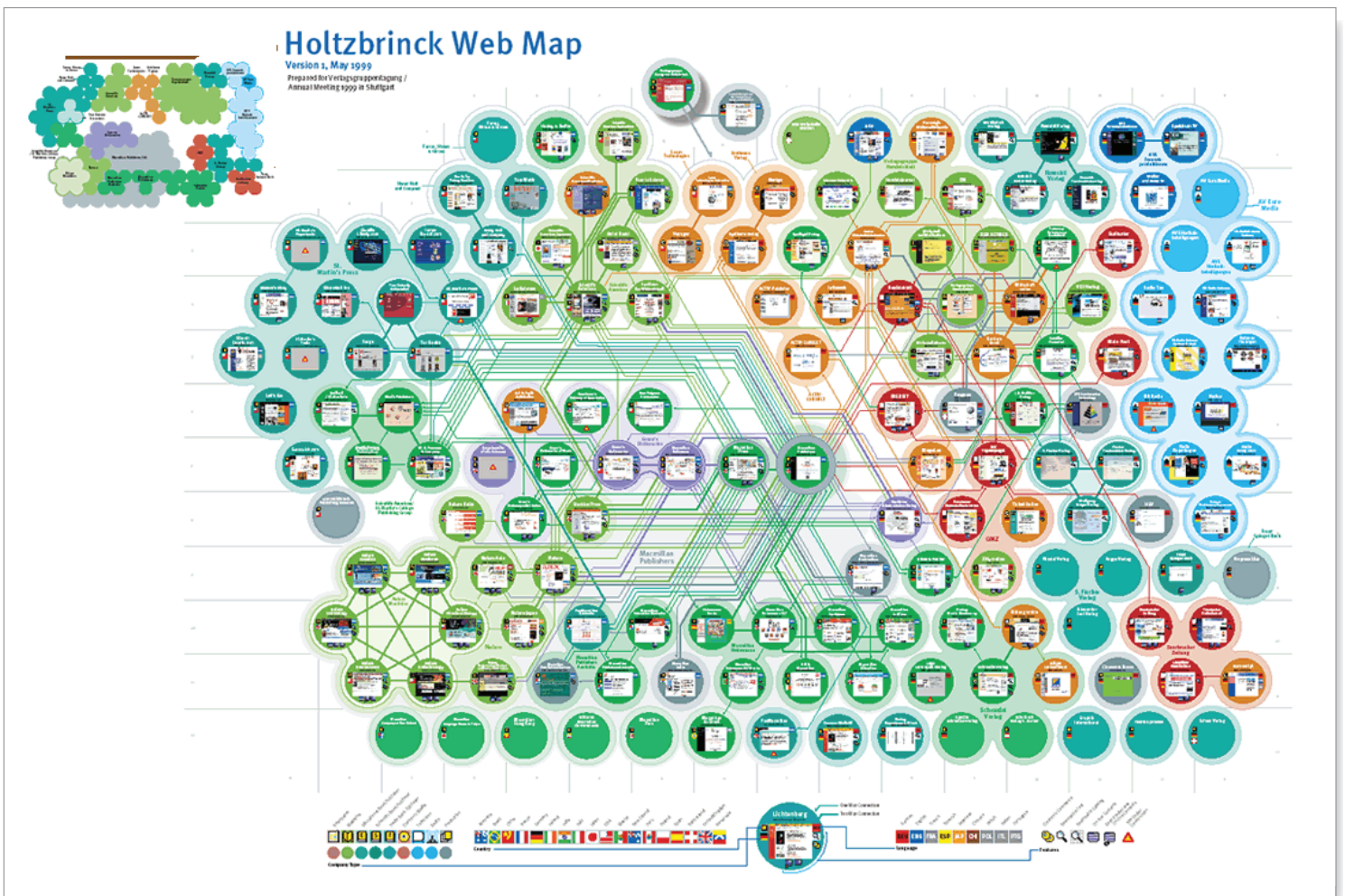
The case studies that follow demonstrate the power of visual explanation to realize these benefits.

Improve executive decision making

Executive review can lead to the go-ahead for a single product or the setting of long-term strategy for an entire organization. Visual explanations streamline the process by showing business operations in one view. Visual explanations can benchmark an existing situation and outline patterns of growth.

When the Georg von Holtzbrinck Publishing Group prepared to review its global internet strategy, it needed a place to start. Holtzbrinck brought in Dynamic Diagrams to analyze and visualize the scope of the company’s online operations across multiple divisions and subsidiaries. The wall-sized map we created shows organizational, language, product, and geographic groupings of all of the publisher’s web properties. Viewed close up, the map provides key details about each of the company’s individual web sites.

By enriching a macro view with a substantial level of detail, the Holtzbrinck web map provided a common point of reference for executive discussion.



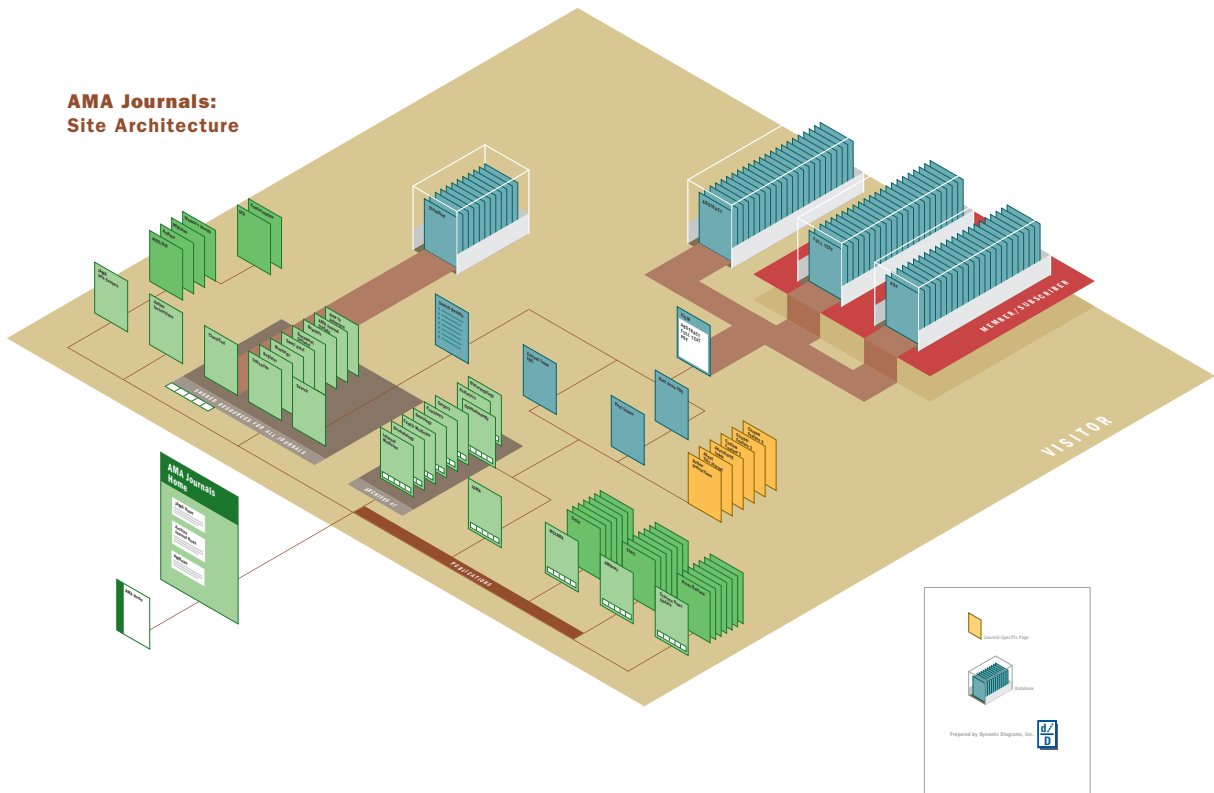
Web map created for Georg von Holtzbrinck Publishing Group

Streamline project implementation

Any organization embarking on a new project must have confidence that the project can be managed to completion while still meeting the needs of its audience and stakeholders.

The planning diagrams that Dynamic Diagrams created for the American Medical Association's Publications Web Site show content organization, access control, and shared resources, among other details. The diagrams ensured that the AMA's editors and managers, our own visual designers, and the vendor hosting the site all had the same view of the plan.

By showing structure and organization, visual explanation excels as an aid to project planning.

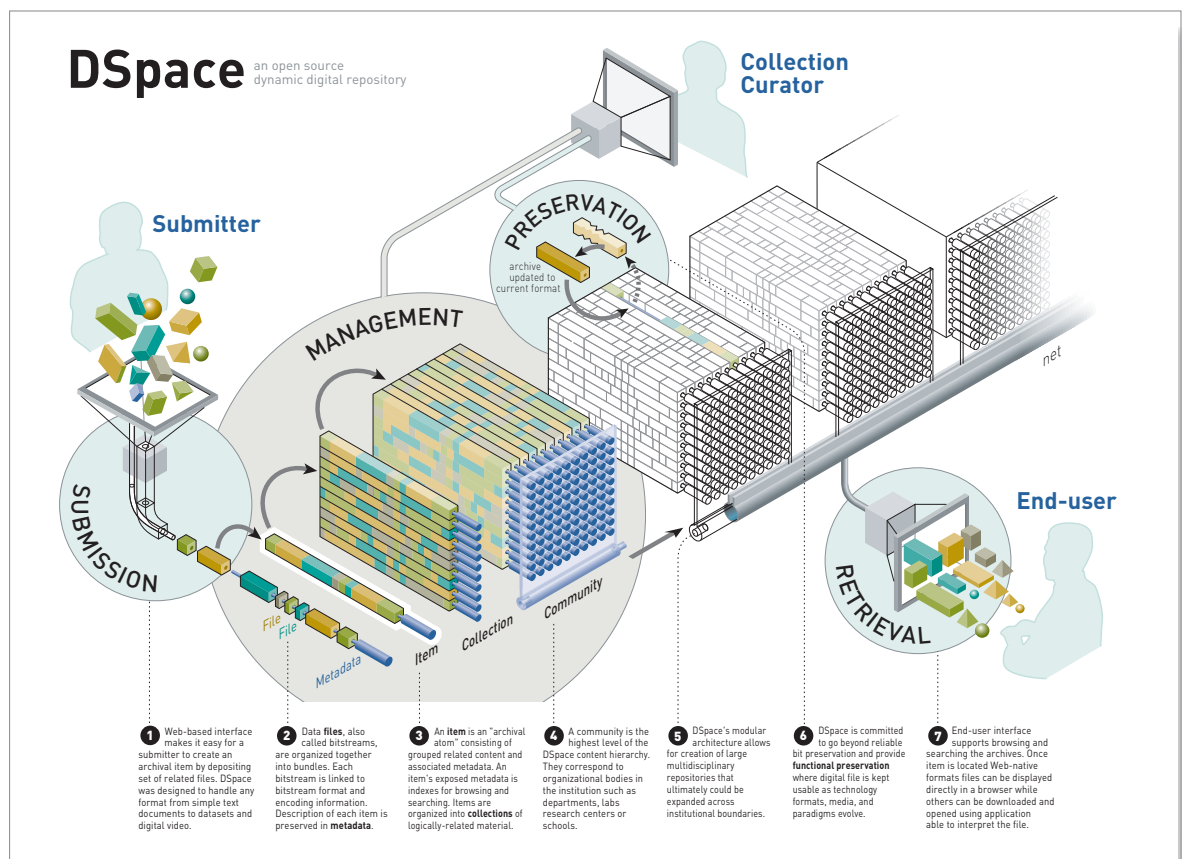


Web site planning diagram created for the American Medical Association

Communicate the value of complex products and services

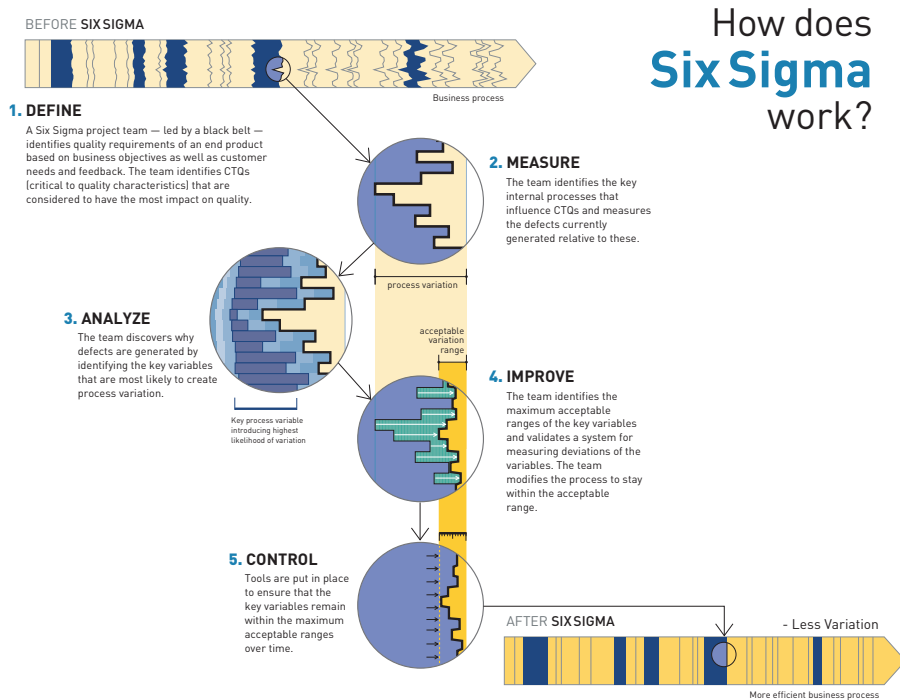
Knowledge-based products and services can be exceedingly difficult to describe. Abstract concepts or complicated processes can confuse potential customers about a product's operation or benefits. With rigorous analysis and creative insight, visual explanation can provide that conceptual understanding.

One example of this is Dynamic Diagrams visual explanation for DSpace, a repository for archiving and accessing digital media. Developed by the MIT Libraries in partnership with Hewlett-Packard, system documentation gravitated toward engineering specs. MIT asked us to help demystify the system to encourage its adoption. The resulting visualization follows the path of content as it moves through the system. Authors, curators, and researchers can all see their role in creating and accessing organized, searchable knowledge collections.



Visual explanation created for the MIT Libraries DSpace initiative

Another example is our illustration of the Six Sigma quality assurance process for *CIO Magazine*. Six Sigma is a multistage process based upon extensive data collection and complex statistical analysis. Important to the editors was that we explain the conceptual importance of Six Sigma, not just illustrate one of its activities. In response we developed a visual metaphor for the “smoothing” of business processes, leading to less variation and therefore fewer errors.



How does Six Sigma work?

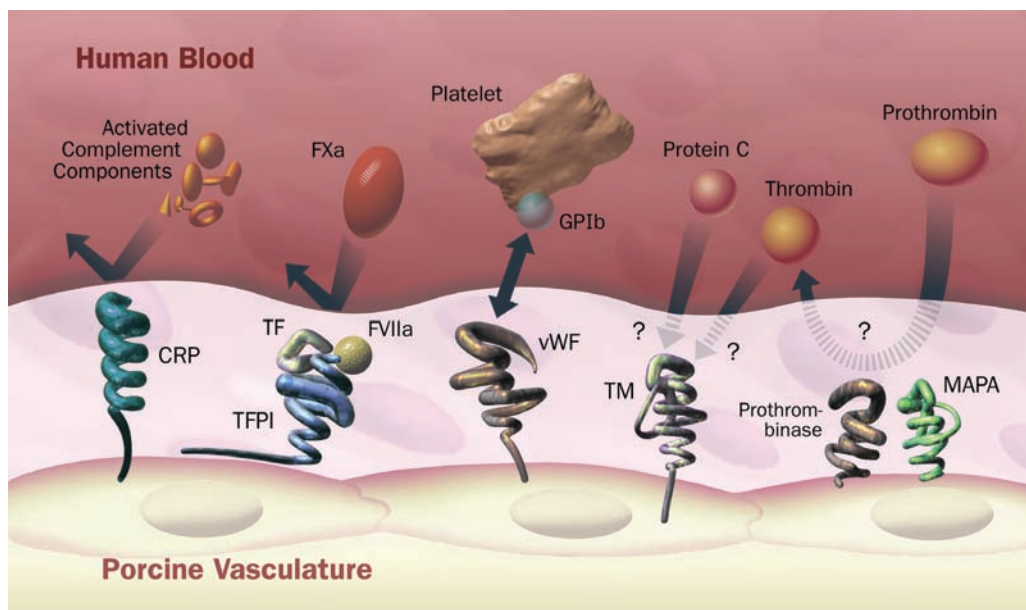
Six Sigma visualization for *CIO Magazine*

Create comprehension and buy-in from different audiences

High tech businesses and research labs often find it difficult to explain their work to non-specialists. Yet such explanations are crucial to reaching customers, gaining funding (internally or externally), and publicizing results.

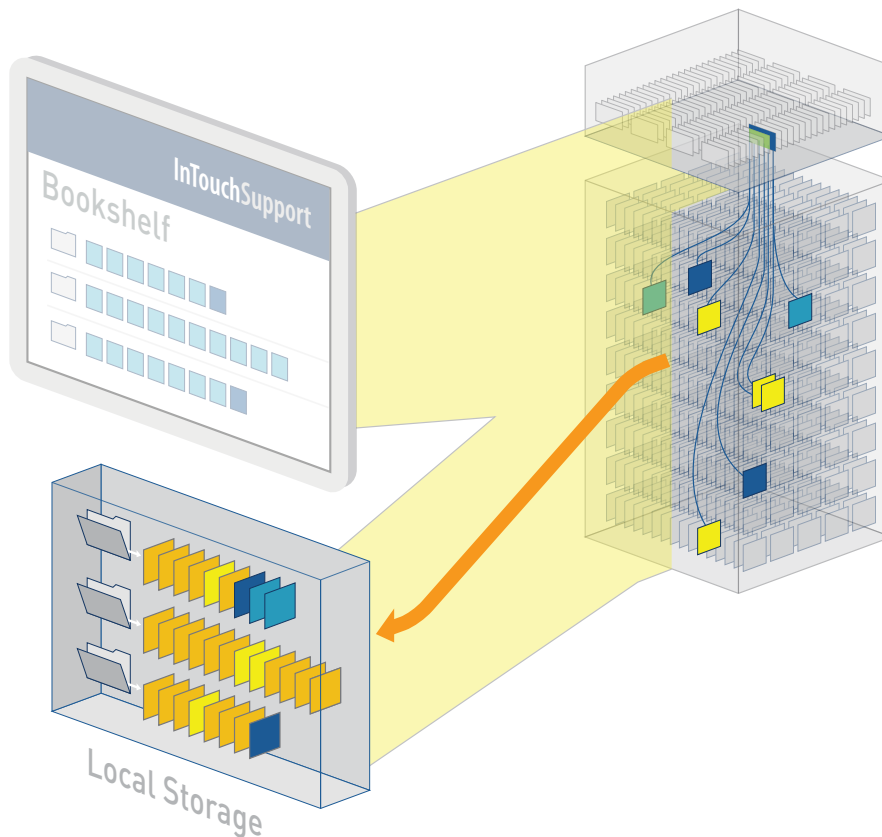
Researchers working for the pharmaceutical firm Novartis asked Dynamic Diagrams to create a presentation that would illustrate the cellular-level reactions that follow the introduction of animal tissue into the human body. Our depiction made this concept accessible to a wide audience without generalizing the details that validate the research to other medical and biotech specialists.

Visual explanations are perfect for presentations. Annotated visuals allow speakers to tailor their address to the level of expertise of their audience, without creating cognitive conflict from text-heavy slides.



Transplant research presentation created for Novartis

For a very different engagement, we used a Flash animation to realize a similar goal: promote comprehension and buy-in. In this case, our client, Schlumberger Oilfield Services, was prototyping a software application that would allow fieldworkers to localize information from the company's web-based knowledge system. Our task was to show how offline information could be kept in sync with the online database. Animating the process helped us explain the sequences of data retrieval and synchronization, key concepts for user to understand if they were to adopt the new technology.



Data synchronization animation for Schlumberger's InTouchSupport database

Show things that cannot be shown any other way

While we often use animation to increase the effectiveness of a visual explanation, there are times when animation is imperative. Some things must be seen in motion to make an impact. When the item in question is too small, too large, too complex, or too valuable to be manipulated by hand, only an animated visual explanation can explain how it works.

For the Musée National des Arts et Metiers in Paris, Dynamic Diagrams created an interactive three-dimensional model of an antique marine clock in the museum's collection. Designed for a kiosk, our visualization allows visitors to study the mechanics of the clock in motion or see the clock's gears in a dismantled state—two things that are impossible to do with the actual artifact.

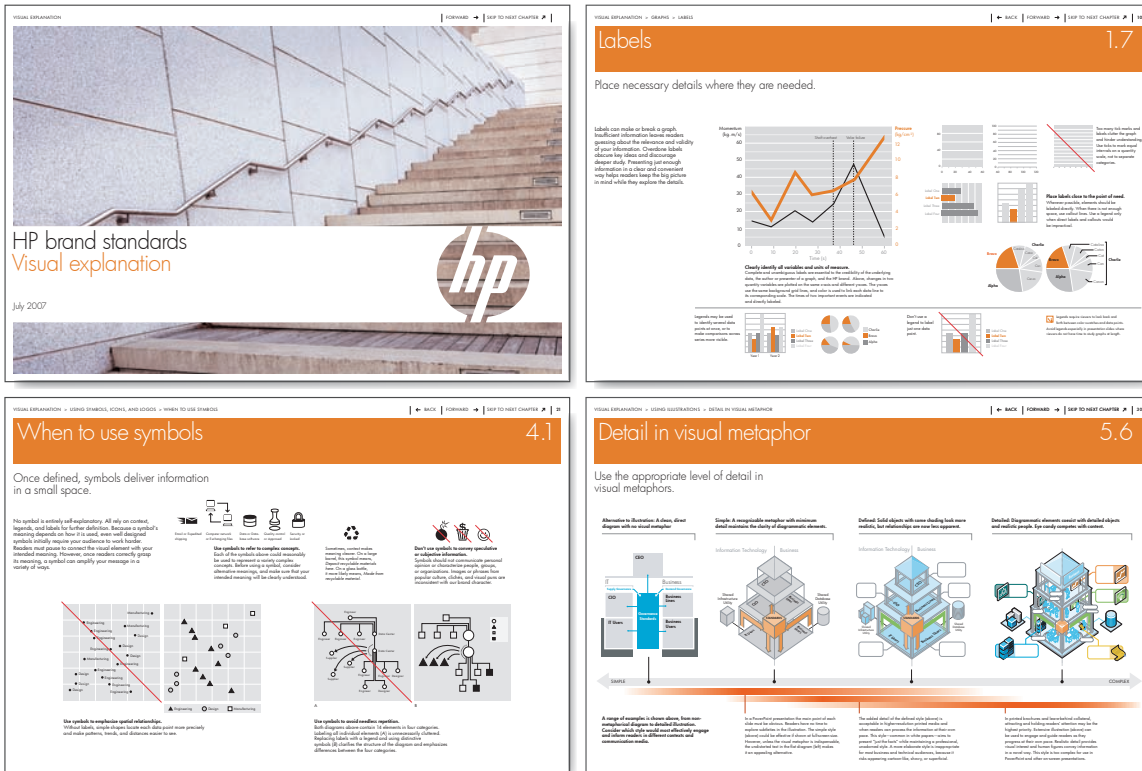


Marine clock model created for the Musée National des Arts et Metiers

Improve operational efficiency with better communications

Visual explanation is more than a product of good design. It is a way of thinking. When organizations demand more than clip art, good things happen: better communications, richer discussions, more engaged staff.

To help Hewlett-Packard improve visual communication, Dynamic Diagrams created an information design style guide and led training workshops in visual thinking. Now employees can confidently venture beyond spreadsheet charts and bullet points. The design guidelines ensure that information graphics remain consistent with the corporation's brand standards, while remaining grounded in sound visual design principles.



HP brand standards Visual explanation
July 2007

Labels 1.7
Place necessary details where they are needed.

When to use symbols 4.1
Once defined, symbols deliver information in a small space.

Detail in visual metaphor 5.6
Use the appropriate level of detail in visual metaphors.

Information design guidance for Hewlett-Packard

Next steps

At the most fundamental level, a visual explanation changes the way people think. The familiar is made new. The conceptual or visionary is made real. Fresh thinking draws customers, funding, and support.

Dynamic Diagrams has been a leader in the design of visual explanations since its founding by Paul Kahn and Krzysztof Lenk in 1990 as a design studio committed to the sophisticated presentation of information.

Go to www.dynamicdiagrams.com or call us at **401.223.1233** to find out more about how we can help you reinvent the way you communicate.