Information professionals decry the absence of actionable information in their firms. Yet they’re overlooking an approach that can help them create it—information design. This article talks about what actionable information is, why it’s so rare in organizations, and how to create it.
Doing business today means more speed and more complexity. Like everyone else in an organization, the information professionals are aiming to pick up their pace and their reach. For example, Cisco’s IT team must make sure they can close the books every day and sell an acquired company’s products through the corporate catalog on the day the acquisition is announced to the public. Many organizations are addressing the escalating demand by creating larger information storage bins and making sure their people can pull more information through their expansive networks. Well, it’s not going to work. Having better access to more information actually makes the problem worse. The bottleneck isn’t getting more information; it’s making more sense.

Most firms are overlooking an approach that will help. They can wring action out of their current computerized clutter through information design. The challenge? Embracing information design will mean making deep changes in your view of what it means to be an information professional, and it will ultimately challenge the leadership of your firm. But it will be worth it.

### Designing Actionable Information

Making information actionable means making it fit for use. In today’s fast-paced, information-overloaded environment, that means it must be clear, truthful, timely, and obviously meaningful in the context of the decisions at hand. It must also be distilled to its essence and organized so that it gets its meaning across effortlessly. (See Exhibit 1 for an example. This diagram was created by Nigel Holmes, information design specialist and founder of Explanation Graphics.)

How do we construct information that is fit for use? We piece together disjointed data fragments—frequently with graphics—to:

- Clarify meaning.
- Create consensus.
- Get the message across in a hot second.

### Clarify meaning

As an analytical process, designing information helps you see the patterns in the data that provide insights and point toward action. For example, one of the authors of this article laid out the history of Harvard Business School’s MBA program on one page and discovered that the school had been making major curriculum changes roughly every decade—a fact
of which neither the faculty nor the administration was aware. (See Exhibit 2.) Creating the chart took a day and concluding it was time to revamp the curriculum again took another few weeks—blinding speed in any traditional organization.

Information designers start by asking the question "What's most important here?" Then they let the answer drive the design. Since the arrangement of the data changes its meaning, this approach focuses on the fundamentals and lets the data tell its own story truthfully. Designers also pump up the analytic impact by substituting rates and ratios for raw data and distilling data so it fits on one page. A clutter of raw numbers turns into meaty comparisons when it is charted over time, contrasted to goals, or arrayed in one meaningful graphic.

Create Consensus. Experts think of information design as a process, as well as a product. It provides a common platform for people to compare their mental models and bring these into alignment—quickly. One high tech leadership team thought they knew what they wanted for their Web site. In one session with an information design professional—where each executive’s personal perspectives were sketched out in real time—they found out how far apart they were. The process let them see and discuss what they’d been missing—the hidden assumptions and unspoken needs that would have undermined consensus sooner or later.

Using graphics engages people, brings different viewpoints into the process, and helps iron out tough issues. A Web-design company needed to help clients understand the impact of their role in the design process—like getting approvals on time. Clients would frequently delay approvals, then expect the Web site to be finished without a hitch anyway. The firm created a diagram that depicted the entire process, showing all the players and their responsibilities—including the client. The designer remarked, "The chart appeared friendly, but the whole point was to help the client understand that they’d better hold up their end of the bargain—and sign off when the time came—or there’d be additional charges." It was a smooth way to communicate about a tricky issue.

Get the Message Across in a Hot Second. Information should tell its story in a clear, simple way so that even the most casual observer gets the message as effortlessly as possible. But you’ll need to win your audience’s attention before you can communicate with them. Many corporate communications fail on this score. One journalist noted, "Press releases are dull and boring—they’re just words. The minute they show up on my desk—and I

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**Exhibit 2: Evolution of the First Year MBA Curriculum**

This exhibit shows the evolution of the first year MBA curriculum from 1950/51 to 1990/91, highlighting the changes in course offerings and structures over time. The chart is color-coded to distinguish between different academic disciplines and courses, providing a visual representation of how the curriculum has developed over the years.
The information professionals we talked to want to use information design to help customers navigate—whether it be navigating product features or finding their way around the Web site. And good navigation can make the difference between a delighted customer and one who turns his back on you in disgust. For example, a few years back, a major computer company asked Krzysztof Lenk and Paul Kahn of Dynamic Diagrams (now an arm of Cadmus Communications) to evaluate a customer’s experience of setting up a notebook computer. Lenk and Kahn ordered one of the machines to be delivered to their office and started the video camera rolling as they unpacked the boxes. Inside they found a computer and 27 other items, 6 of which were boldly marked, “open me first.” It turned out that all of these items were marketing literature and had no instructions for getting started with the computer. Their report documented just how slow and stressful the setup process was, and the computer firm asked them to design a solution. They created a map—a large diagram that you’d lay out on your computer table showing you exactly where to place each component you had ordered and exactly how to connect it. Clear and simple. (See Exhibit 3.)

Why is Actionable Information Essential?

Having well-designed, actionable information will help your firm move at the speed of business in four ways. You’ll drive out wasted time when you design information to:

1. **Communicate business opportunities quickly.** Executives can’t solve performance problems or take advantage of business opportunities unless they see them clearly. A pharmaceutical firm couldn’t tell why it was losing market share—despite voluminous data on physician prescriptions. When information designers boiled the data down to a two-page spread, it showed the patterns that pinpointed the problem. The firm was able to give sales people clear assignments to reverse the trend. Root Learning, a consulting firm, specializes in using information design to help leadership teams communicate their strategies throughout their organizations. Through intensive meetings with executives, Root Learning develops a series of postered sized graphics that convey the company’s business challenges and strategic directions. Then the company’s leaders use these to facilitate conversations with their employees about where the firm is headed and what each part of the organization can contribute to making the journey successful.

2. **Help people find their way around.** Just bought a new VCR? Chances are you’ll never use even half its capabilities. Shopping for something specific on the Web? According to Jared Spool, you’re more likely to give up and reach for the phone than to find what you want. The information professionals we talked to want to use information design to help customers navigate—whether it be navigating product features or finding their way around the Web site. And good navigation can make the difference between a delighted customer and one who turns his back on you in disgust. For example, a few years back, a major computer company asked Krzysztof Lenk and Paul Kahn of Dynamic Diagrams (now an arm of Cadmus Communications) to evaluate a customer’s experience of setting up a notebook computer. Lenk and Kahn ordered one of the machines to be delivered to their office and started the video camera rolling as they unpacked the boxes. Inside they found a computer and 27 other items, 6 of which were boldly marked, “open me first.” It turned out that all of these items were marketing literature and had no instructions for getting started with the computer. Their report documented just how slow and stressful the setup process was, and the computer firm asked them to design a solution. They created a map—a large diagram that you’d lay out on your computer table showing you exactly where to place each component you had ordered and exactly how to connect it. Clear and simple. (See Exhibit 3.)

3. **Make better decisions early and often.** Physicians improve their decision quality by having clinical data displayed in the right format—their frighteningly high error rate on a problem with a correct answer drops from 50 percent to 15 percent.¹ A large restaurant chain was able to make substantial improvements in restaurant operations by designing a graphical evaluation format. The design condensed a 40-page report into a 2-page spread depicting how performance varied across restaurants. In addition to spotting laggards easily, managers were able to quickly see whether the results of pilot improvement programs were paying off. A daily newspaper—truly a high-speed information environment—designed its page production software so editors and journalists could see the state of any page of the paper in real-time. Having this capacity enabled them to focus on finding the right story to finish the next most critical page. Netscape was able to improve its Web site by hiring information designers who started by simply documenting NetCenter’s current state—graphically and in digestible bites. Once all of the engineers at Netscape could see the flows, they could easily discuss how to improve them.
4. **Inspire breakthrough innovation.** Information design can be used to help your firm find, confront, and use provocative information—new trends, wacky ideas, and unsettlingly discordant facts. Executives at a major manufacturer discovered the power of designing information for breakthroughs. They wanted to stimulate their design engineers to shift their focus from designing and redesigning products to providing new insights into the ways people would use these products in the future. And they wanted fresh new ideas to set a radical course. To put the team in the right condition of mind, they papered the walls of a room with a broad array of information snippets about demographic trends, lifestyle changes, and technology projections. They felt that if you stepped back and looked at this collage of information, you would gain fresh new insights. The result? This window into the future created more confusion than inspiration. So the manufacturer hired information designers, Donovan and Green (D&G) and Richard Saul Wurman, to clean up the mess. D&G (now a division of USWeb/CKS) and Wurman started by organizing the data into a system of panels, each with a broad subject like "time deprivation" or "aging population." And they created an information architecture so the reader could explore ideas, discover linkages, and drill down—

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**The Great Divide—Information Management vs. Information Design**

Sounds great. What’s the problem? Companies are painfully short of actionable information, and their IT professionals are not using information design practices to create it. We found that IT leaders rate actionable information as important for decision-making—averaging 4.8 out of 5, where 5 is highly important. But most are not on a track to get there. Three obstacles stand in the way. IT professionals:

- Are unfamiliar with information design
- Do not get their hands dirty with content
- Are not thinking graphics
IT executives are not thinking graphics. They seem unaware of the power of visual analysis and communication. We asked them how they're using graphics. Most mumbled something about PowerPoint and Excel. In contrast, information designers think of PowerPoint as a "carcinogen." To them, designing information does not mean making slides with bullet points. It means arranging information in a way that communicates visually. It starts with a pencil, some paper, and the imagination to sketch out designs. That means breaking out of the constraining business definition of graphics as bar and pie charts and the limitations of the software that 'automagically' creates them. Ironically, IT executives use visual analysis extensively for designing systems architectures and flowcharting software. It just isn't on their radar for business decision-making.

Bridging the Gulf

Executives who want to use actionable information to manage at the rate of business must bring information design into their

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The Information Design Process

Understand:
- Who will be using the information
- What that audience will be using it for
- What key question(s) or objective(s) they will be addressing
- The data and what it means
- The facts about what works best in your medium of choice—Web, print, etc.

Develop:
- Analyses that capture the meaning of the data
- Schematics that clarify the data and communicate its meaning
- Both of these in concert with the audience in order to elicit their mental models

Produce:
- Actionable information, usually in several formats—narrative, graphic, Web page, etc.

Start over again because the world changes quickly.

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IT professionals do not get their hands dirty with content. Some information professionals believe their responsibility ends when they’ve provided access to information, not actionable information. These IT managers are immersed in managing the computing and data infrastructures—the input side of the equation—instead of focusing on the outcomes their companies need. They’re hot on the trail of ubiquitous networks, integrated transaction platforms, and well-populated data warehouses. When asked what kind of information will give them an edge in the marketplace, they reply, "That’s up to our marketing department." Information designers, on the other hand, unanimously assert that you can’t design information unless you understand both the question you face and the data you’re using to answer it.
key questions: where are we? where are our subordinates? where is the enemy?

Sounds simple, but it frequently took as long as seven hours to answer these questions in the field so that an officer could make a decision about what to do next. Business leaders’ ability to come to grips with urgent issues—such as a competitor’s price change—is often no better.

The Army started a four-year initiative to create one division—15,000 soldiers—of 21st century land warriors. They provided a computerized map—what they called a “common operating picture”—at each command level, from the soldier to the general. Like a strategic video game, it displayed a running view of friendly forces, enemy forces, and critical supplies collected by a variety of transponders, sensors, drone-mounted video cameras, and GPS equipment. And the information design was tailored to the individual in front of the screen. The division commander could see the whole threat region, while the sergeant inside a tank saw the terrain relevant to his or her unit.

Seeing the big picture changed everything. The commander could sketch out a battle plan on the screen with a light pen.

To bridge the gulf, executives must make information design part of everyday information management. That means integrating information design with information technology and data management. (See Figure 4.) What, exactly, do we mean by “integrating”? We mean exploiting the leverage you get by combining your ability to process transactions quickly, to manage data so that it is clean, accurate, and consistent, and to design information that communicates its true message in a hot second.

It’s a tall order, but it’s doable. Just ask the U.S. Army. Four years ago, the Army’s training doctrine command took a look into the 21st century and concluded they had to make a substantial change in the way the organization worked. Their vision hinged on actionable information. They believed they could improve the fighting force’s speed, flexibility, and effectiveness if they could give everyone real-time answers to three key questions: where are we? where are our subordinates? where is the enemy?

organizations. But it won’t be as simple as hiring a few information designers. Information designers can bring information to life for a strategic decision or design a Web site that speaks volumes to customers. And firms should use them this way, by all means. It’s just not enough.

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Exhibit 4: Providing Actionable Information Requires Integration of Three Competencies

Actionable Information
Information that's fit for use helps managers operate at the speed of business

Availability
Fast, reliable, ubiquitous access puts information in your hands when you need it

Data Management
Consistent, accurate clearly-defined data provides one version of the truth,

Information Design
Clear, distilled organized information gets its message across in a hot second,
Getting Started

Courageous leaders will embrace information design in spite of the challenges. Here’s how to get started:

- Pilot information design for a mission-critical issue. Step into the world of information design by tackling a complex issue that is critical for your business success—where making good decisions will set your company apart. How do you choose the right one? Ask the hard questions, like they do at a major chemical company. As part of the corporate planning process, line managers must develop a short, definitive statement of what business they are in. This approach sounds simple, but it forces managers to boil their business down to its fundamentals. Then, they drill into business unit operations to understand exactly what drives success. In several cases, businesses have been turned around by focusing on just one or two pivotal factors such as revenue growth, gross margin improvement, or customer retention—excellent candidates for an information design pilot.

- Start developing a new breed of information professional. Tell your technical staff that you won’t get the business edge you need with old-fashioned cross-disciplinary teams. You’ll need individuals who have the breadth and depth of skills to cover all three information domains. What will you look for? Individuals who know how to do data-intensive research on important business problems, who’ve gotten their hands dirty with information technology, and who can communicate graphically. Then use training and recruiting to aggressively build literacy across your organization.

- Ask line executives to lead the charge in making information actionable. There’s nothing easy about transforming your organization into one that uses actionable information to move at the speed of business. According to General William Hartzog, “The key is a leader who’s stubborn and senior enough to keep the momentum going. There are a thousand reasons why you won’t be successful, and you have to fight off every one.” What will the biggest leadership challenge be? Standing up for the unvarnished honesty you get when you embrace information design.

At the touch of a button, it would be transmitted to his staff so they could talk together about the plan. In seven minutes—not seven hours—the commander could issue a new "op order," and one with the benefit of direct field input.

The results? Having actionable information changed the pace of decision-making for this organization by two orders of magnitude. This, in turn, changed the pace of battle and enabled these soldiers to handle more complex activities on more fronts. When they started the initiative, this division was ranked as the least ready deployable force. Now, when they face off against the Army’s other troops in training exercises, these soldiers are lethal.

What the Army has done is to learn to make analytically complex decisions at transaction speed. No mean feat. To pull it off, they’ve had to make several fundamental—and wrenching—changes in their culture and organization. First, they changed what it means to be an information professional in their organization. They call them "signal officers," and they’re responsible for both intelligence and information management. Furthermore, every soldier and every officer has an information responsibility—not just to pass data along, but to ask the right questions, to judge what’s important, and to draw implications.

As you might imagine, this redistribution of authority shakes a traditional hierarchy to its foundations. And it changes the way they manage. They can see a problem and take a decision at a pace that doesn’t leave room for double-checking or dithering. The commanders who rose through the ranks because they were able to make good decisions by intuition or by careful reconnaissance are obsolete. Now the Army needs leaders who can act on the information in their hands. Younger officers who have grown up with video games out-perform their older colleagues every time.

Finally, the Army was able to create its real-time common operating picture because its leaders had the courage to face the truth. When the troops are failing, it’s obvious to everyone. Many business executives would prefer to control perceptions more carefully. They frequently forego the chance to fix real problems when it means facing the issues honestly.
References


2. For more information, you can reach this firm at its address—Root Learning, Inc., PO Box 970, Perrysburg, Ohio, (419) 874-0077—or at its Web address—www.rootlearning.com.


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