

# Managing as Designing: Lessons for Organization Leaders from the Design Practice of Frank O. Gehry

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Figure 1

The Peter B. Lewis Building.  
Photos by Robert A. Muller.

In the summer of 2002, our school moved into its new home, the Peter B. Lewis Building, designed by Frank O. Gehry. (Figure 1) We are faculty members at the Weatherhead School who have become involved in studying Gehry's unique design practices and their implications for managing and organization design. We had an interest in design and its importance for management before encountering Frank Gehry,<sup>1</sup> but our involvement with him took that interest to a new level of commitment.

## Learning from Frank Gehry

Interacting with Frank Gehry and his colleagues reinforced our belief in the importance of design as a mode of cognition and as an organizational practice. It also inspired us to explore the ways in which design could inform management by convening a workshop in June, 2002 on "Managing as Designing" ([www.design.case.edu](http://www.design.case.edu)). The

1 See References on page 25.

workshop, which was funded by the National Science Foundation (#0132757), brought together designers, managers, and organizational scholars to discuss how knowledge of design could benefit the practice of management. Some of the more engaging results of that workshop were published in 2004.<sup>2</sup>

We also organized a formal study of Frank Gehry's design practice to trace the innovations in architecture, engineering, and construction associated with his unique building projects, especially those related to his use of three-dimensional digital representations in design. Our study, also funded by the National Science Foundation (#0208963), is now in its third year, and reveals that a wake of innovation follows from the construction of Gehry's designs, including innovations in crafts, fabrication, engineering, technology use, project management, and organization strategies. Here, we will highlight some of the lessons for management and organizational leaders that we have gained from participating in the Lewis Building project, the managing as designing workshop, and our ongoing study of Frank Gehry's design practice.

Animating our interest in bringing together design and management is dissatisfaction with the way that design, as a *noun*, seems to overshadow design as a *verb* in the popular press, as well as in the practice of modern management. This results in an emphasis on design as a completed and whole *thing*, instead of design as a becoming and unfolding *process*. In the popular press, it means that design is treated as referring to style or fashion. In management discourse, it means that design is treated as referring to a finished product, or an established way of doing things in an organization. Either way, the power of design as a verb—as a way of defining problems and projects, and of acting responsibly to seek betterment in the world—is lost. We are committed to bringing the verb form of design to life in management thought, because design is so central to the actual process of managing. Successful managers and successful organizations are ones that engage in design as if it mattered—they actively design and redesign products, processes, and services in order to create new markets and to succeed in existing ones. Entrepreneurs are wonderful examples of the designing managers—giving form to valuable new products and services, and sometimes creating whole new industries. But all organizations, even the most well-established, depend on capable designing on the part of management for their continued survival and success.

It has been almost forty years since Nobel Laureate Herbert Simon declared the centrality of designing to managers, yet management scholars continue to ignore his sage arguments. In 1969, Simon, wrote *The Sciences of the Artificial*, one of the finest examples of what we call the design attitude for managers. Now in its third edition, it called for a new curriculum for management education based on the manager's role as designer. He saw management as a profession whose training should be like that in the applied sciences, such as

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2 R. J. Boland, and F. Collopy, *Managing as Designing* (Palo Alto, CA: Stanford University Press, 2004).

engineers or architects, rather than the natural sciences because the manager's professional responsibility is not to discover laws of the universe, but to act responsibly in the world to transform existing situations into more preferred ones. Simon held that, like the engineer or the architect, the manager is a form-giver who shapes social organizations and economic processes to create value. As he stated in the preface to the second edition:

Engineering, medicine, business, architecture, and painting are concerned not with the necessary but with the contingent—not how things are but how they might be—in short, with design.<sup>3</sup>

In his *New Science of Management Decision*, Simon equated managing with decision-making, and argued that there are three essential aspects of decision-making: intelligence, design, and choice.<sup>4</sup> He further argued that these three elements are inescapably intertwined, and that the new science of decision should attend to each. Yet, quite quickly, the institutionalized study of management decision-making reduced these three into a single aspect, that of choice. Decision-making, which Simon saw as a multifaceted, noble calling for managers, is now seen as making a choice from among the alternatives that are presented to them.<sup>5</sup> We see dramatic evidence of this reduction in the scope of management decision-making even at the highest levels of the U.S. Government. As an example, it was asserted by national leaders that the President of the United States had no decisions to make with respect to an August 6, 2001, intelligence memo warning of an al-Qaeda attack, and included references to New York, airplane hijackings, and the World Trade Center, because it did not include "actionable intelligence," meaning a choice of actions to take. Although Simon expected the responsible manager to engage in decision-making through a robust and recursive process of collecting and interpreting evidence, designing possible courses of action, and testing multiple ideas, today's leaders are resolutely passive, waiting for "actionable" items to be presented to them. Sadder still, the media and the American public accept this state of affairs. In keeping with the overly noun-based uses of design, organization leaders today are mere responders to situations presented to them, as opposed to active makers of a future worthy of us as human beings.<sup>6</sup>

Giving serious attention to Simon's call for recognizing the importance of designing to management is long overdue. Thus, we emphasize that design in its verbal form is a critical yet overlooked skill for any successful leader or organization. A design attitude, with its expectation to shape a better world, is a neglected but centrally important cognitive mode that should be nurtured in management practice and education. This paper summarizes some lessons on designing for management derived from our observations of Frank Gehry and his associates over the last six years. Even though we are transplanting these observations from the working practice of a

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3 H. A. Simon, *The Sciences of the Artificial* (Cambridge, MA: MIT Press, 3rd edition, 1996), xii.

4 H. A. Simon, *New Science of Management Decision* (Reading, PA: Prentice Hall, 1977).

5 J. G. March, "Bounded Rationality, Ambiguity and the Engineering of Choice," *Bell Journal of Economics* 9 (1978): 587–608.

6 R. J. Boland, "Control Causality and Information System Requirements," *Accounting, Organizations and Society* 4: 4 (1979): 259–272.

renowned architect in the context of his building projects to the work of managers in other types of organizations and projects, we believe these observations can inform a new and empowering mind-set for the management of our public and private institutions.

We first discuss the notion of a design attitude and its relevance for management and organizational leaders. We then review the importance that Frank Gehry and his associates place on an awareness of vocabulary, and the benefits that a critical awareness of vocabulary could bring to organization design. The word “functional,” as described by Gehry, is used as an example of how a reflective awareness of language in design can redirect management attention in beneficial ways. We then review the powerful lessons for management in Frank Gehry’s use of multiple models in his design practice; in the tension between his conscious efforts to sustain a liquid state in the face of pressures to crystallize his designs; and in his ability to embrace constraints and use them to energize design innovations. We end by comparing and contrasting the lessons from Frank Gehry with those learned from the study of software designers in organizational settings; highlighting the importance of meta-design in enabling managers and organizational leaders to benefit from these lessons in their own organizational design practices.

### A Design Attitude

There is a very distinct attitude that pervades the work in Gehry’s studio: we call it a “design attitude.” By design attitude, we mean a thorough, ongoing expectation that each project is a new opportunity to create something remarkable, and to do it in a way that has never been done before. They respect the conditions (beliefs, expectations, practices, policies, etc.) that they find in a new project situation, but they anticipate that these conditions could be other than they are, and they strive to change them for the better. In addition, Gehry believes there is a great need to create real architecture.

Why then is there so much mediocrity in our landscape?

Why then doesn’t the world at large realize it? I’d say 98.5% of buildings are mediocre—I call them *buildings* because I wouldn’t even list most of them as architecture.<sup>7</sup>

This design attitude is not restricted to his firm, but is evident in almost all of the individuals and organizations that become involved in his projects. From the president of contracting firms to the craftsmen who fabricate the buildings, we saw a desire to do things better than before—a design urge that compelled them to question and search for new methods, materials, and ways of organizing. A common phrase we heard from craftsmen and contractors alike in regard to some aspect of the work for which a conventional approach had been proposed was: “Well, you could do it that way, but why?”

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7 F. O. Gehry in R. J. Boland and F. Collopy, *Managing as Designing* (Palo Alto, CA: Stanford University Press, 2004), 19–35.

We see the design urge as a powerful force for innovation and improvement that too often is overlooked or suppressed by managers and management education. Frank Gehry sets the stage with his reputation, bringing a high-profile image of creativity and invention to a project; but others who became involved already have the seed of a design urge in them, and it flowers with encouragement. In the world of management, most organizations, most products, most services and, ultimately, most socio-technical systems of any sort can be made better—not in the sense of quality or efficiency, but in the sense of being *functional*, as described by Gehry below. They can and should be other than they are, and a design attitude is the first step in being able to realize the possibilities for organizational betterment that lie within us.

### **Design Vocabulary**

In addition to the design attitude, another rather fundamental difference between Frank Gehry's way of working and the world of management and organizational practice is his awareness of his own vocabulary. No doubt this is true of many great designers, but it is not so common with managers. We often heard Gehry and his associates refer to the vocabulary of a project, and question whether an element in consideration was in keeping with a project's vocabulary; or how the project vocabulary might be extended or played out. Since we think about vocabulary and language as something that changes rather slowly, we asked Frank Gehry if he saw a trajectory in his work. He said that he always tried to do something different, and that if he knew where a project was going before he started, he wouldn't do it. Then he added: "But you can never escape your vocabulary." There is a tension between the coherence a well-developed vocabulary can bring to a project (in methods, materials, processes, etc.) and the constraints it can impose on the desire to create new and more powerful designs. Without an awareness of one's vocabulary, this tension does not get to play itself out, and we anticipate that its absence would constrain innovation.

Being aware of the importance of language, and of the way that practices, routines, images, and other nonverbal elements are all part of one's vocabulary, is a level of reflexivity that we seldom, if ever, see in management—even in the most iconic of business leaders. We cannot help but wonder what changes could be wrought in the behavior of organizations, large or small, profit or nonprofit, if their leaders had such a reflective awareness of their language and its effect on their designs. At the very least, they might become aware of how the tools which they employ to justify their actions (cost-benefit analysis, discounted net present value, strategic analysis, profit and loss statements, etc.) are elements of their vocabulary that may or may not fit the situation they are engaging, and that carry a logic which could be at odds with their espoused objectives. The idea that they might then become aware of how they choose

a vocabulary for different responsibilities, and develop a sense of how to develop a better vocabulary as part of their responsibilities, is especially intriguing.

We believe that if designers could help managers gain a sense of their immersion in language and begin reflecting on the characteristics and qualities of that language, our world would be better off. It would be better off because a reflexive awareness of language opens up their possibilities for self-criticism, for considering how their will is shaping their behavior (beyond any causal forces in their environment), and for a more thorough consideration of the motivations and consequences of their actions.

### **Being Functional**

In the “Managing as Designing” workshop, each participant was asked to propose a favorite design word as a seed for discussions. Frank Gehry chose the word “functional.”

Because traditionally, architects use the word functional and clients use the word functional when they look at a building and say, “This guy produced a very functional building.”

And it means to them that they can use it, that it works. But that doesn’t say anything about how it brings emotionality to the table, and doesn’t consider if it is human. Is it humanistic? Functional is boom! There it is, it’s functional.

Functional for me has a broader meaning than that. It means achieving a building that does all the things we want from our buildings. Building the Lewis Building and having it here right now and using it is functional, but that embodies all the processes, all the people, all the budgets, all of the building departments, and the whole history of architecture. All of those things come together over time and arrive at a conclusion that stands here.<sup>8</sup>

In their projects, he and his associates spend a significant amount of time exploring the desired function of a project with a client. This includes functional requirements for current and future programs, for cultural characteristics of the organization, for efficiency of operation, for being a good neighbor, for the context and scale of the environment, and for the feelings and emotional reactions to living in or visiting the structure. All of this takes time, and Gehry insists that his projects have adequate time for a full exploration of their required functionality. During our research, we have seen him walk away from potential projects if he felt there would not be sufficient time for developing the insights required for a truly functional design.

Frank Gehry was explicit in expressing his conviction that a lack of true functionality in today’s organizations contributes to the sorry conditions in the corporate world.

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8 Ibid., 33–34.

The business world is suffering, and I think that a commitment to being functional in this broad sense is something that will pull us out of this terrible situation.<sup>9</sup>

We certainly agree, and we believe that development of a design attitude is a potent antidote for the lack of attention to true functionality in corporate America.

### Models and Emotions

Another aspect of Frank Gehry's design practice is the use of multiple models in his designing; they serve as tools of thought and also evoke an emotional involvement from others participating in the process. He uses sketches and raw models in the early stages of designing in order to convey the emotion he is seeking in the design. By using multiple physical models with different scales, he and his associates seek to explore reactions to different facets of their approach to the design problem, since each model reveals different characteristics of the emerging design (Figure 2). Unlike modern management practices that divide the human experience of organizing into segmented areas of operation, and reduce them into abstract, de-contextualized, and partial representations, Frank Gehry's design practice centers on involving the totality of human experience. Multiple physical models, drawings, sketches, and 3-D computer models are all part of his efforts to evoke and respond to human experiences, both cognitive and emotional. In this way, his design approach allows for *multiple* voices to be heard, with each voice speaking to a different aspect of human experience.

Figure 2  
Multiple models and scales.



Frank Gehry's practice of design as a verb resists the temptation to collapse these multiple voices into a single one, and allows them to speak in their unique ways about the functional requirements of the design problem. Design as a verb allows for playful interactions among different materials, models, ideas, and alternatives. It is this spirit of playfulness that brings the energy and emotion to individuals involved in the process. At the same time, Frank Gehry's design process seeks to realize the possibilities of an idealized dream. His

9 Ibid., 34.

equivocal and evocative sketches provide glimpses of the idealized dream he is searching for, and by not bridling multiple voices or playfulness, the design emerges by drawing emotional energy from them.

In contrast, ever since Taylorism at the dawn of the industrial age, modern management practices have sought to control uncertainty in their environments, and the ability to predict outcomes. As a result, modern, institutionalized management pursues a monotone voice rather than multiple ones. Instead of allowing multiple models to coexist and to play with them, management often seeks comfort by quickly reducing their choices. When Henry Ford said, "The customer can have any color he wants, so long as it's black," he collapsed the voices of his customers into a single, convenient one. Similarly, professional managers often resort to mimicking "best practices" of their industry as a preferred course of action, citing the management maxim, "Don't reinvent the wheel" even though reinventing the wheel might be precisely what a situation calls for. Time and again, instead of pursuing ideal solutions and dreams worth seeking, and encouraging their subordinates to do the same, managers quickly settle for solutions that are good enough, even though they may not be truly functional. As a result, we have grown accustomed to expecting management to act as if they are engaged in a purely rational, abstract exercise, without significant consequences for human beings. Today, in light of Enron and so many other large-scale corporate failures, managers and their organizations at best are being tolerated as a necessary evil, rather than being celebrated as a creative force that brings life force and emotion into our experiences.

Embracing design as a verb in management thinking includes, then, bringing emotional energy back into the center of managing. It means invoking the hopes and dreams of those who are involved. It means energizing individuals and inspiring them to dream new possibilities. It means searching for ways to create a more functional and satisfying world. We saw this search for betterment not only in Frank Gehry's building designs, but also in the way he manages his projects. Gehry and his associates form and manage teams in unique ways for each project by continually redesigning a "bricolage" of socio-technical spaces, bringing specialized actors and artifacts together in novel ways that respond to the particular conditions and requirements of each project. Despite the different goals and incentives of the many actors in a large construction project, we saw that many of the contractors and subcontractors who worked with Frank Gehry often pushed themselves above and beyond their normal effort level to accomplish the challenging task of building his designs. New tools had to be invented, new methods had to be devised, and their technology and capabilities often were stretched—all in order to meet that challenge. Frank Gehry has enormous social capital because of his unique standing in the



public eye and the media. But instead of using it to center himself as the “star” of a project, he uses it to elevate others around him so that they can pursue their dreams and hopes as well. In a sense, he invites others into the design process as coinventors of ways to build such unusual structures.

There are emerging management theories and practices that can offer concrete possibilities to introduce design as a verb and positive emotional involvement into the process of management. One such practice is “appreciative inquiry.”<sup>10</sup> Unlike other approaches to organization development that focus on the *gaps* to be closed and *problems* to be solved in a situation, appreciative inquiry seeks to tap into the reservoir of life and hope that lie ignored in organizations, and to unleash them as an emotional source for creating positive change. Instead of reducing human experiences into abstract and de-contextualized data points, appreciative inquiry gives voices to these concrete experiences, and orchestrates them in a positive, self-reinforcing cycle of inquiry into how members of the organization can seek higher human goals. Another example of positive emotional involvement is the *Theory of Transformational Leadership*.<sup>11</sup> Unlike traditional leadership theory that focuses on the transactional relationship between leaders and followers (performance and reward), transformational leadership theory seeks to identify the characters and processes that enable leaders to *transform* their followers. The focus of transformation leadership is not on the leaders, but on the followers who are enabled to achieve extraordinary things. Leaders achieve this transformational result by using their emotional, intellectual, moral, and social capital to mobilize their followers in accomplishing collective outcomes. In this way, transformational leaders are, like Gehry, designers who evoke emotional reactions from those around them in order to accomplish extraordinary tasks.

### Balancing Liquid and Crystal States

Frank Gehry tells his clients at the beginning of a project that they will be in a liquid state for quite a while, and to expect that things will be changing as the look and feel, materials, methods, and design idea for the project evolves. He takes pains to not let a design crystallize too soon, and to keep the flow of ideas about the design in a liquid state. He uses many techniques to remain liquid. Some good examples that we encountered are found in his initial drawings and early models of a project. His initial drawings are a kind of stream-of-consciousness sketch, which is meant to evoke a dreamlike, emotional sense of what the building might be like. It is a sketch of the energy and power behind an idea for the building, not the idea itself. It serves as an open-ended invitation to his associates to explore possibilities for realizing the building, not a blueprint to guide its design. (Figure 3)

10 D. L. Cooperrider and M. Avital, *Advances in Appreciative Inquiry* (Vol. One) (Amsterdam: Elsevier Science, 2004).

11 C. C. Manz and H. P. Sims, “Leading Workers to Lead Themselves: The External Leadership of Self-Managing Work Teams,” *Administrative Science Quarterly* 32 (1987): 106–128; R. J. House and B. Shamir, “Toward the Integration of Transformational, Charismatic, and Visionary Theories of Leadership” in *Impact of Leadership*, K. E. Clark, M. B. Clark, and D. P. Campbell, eds. (Center for Creative Leadership, Greensboro, NC, 1993).

Figure 3

An early sketch for a model study.



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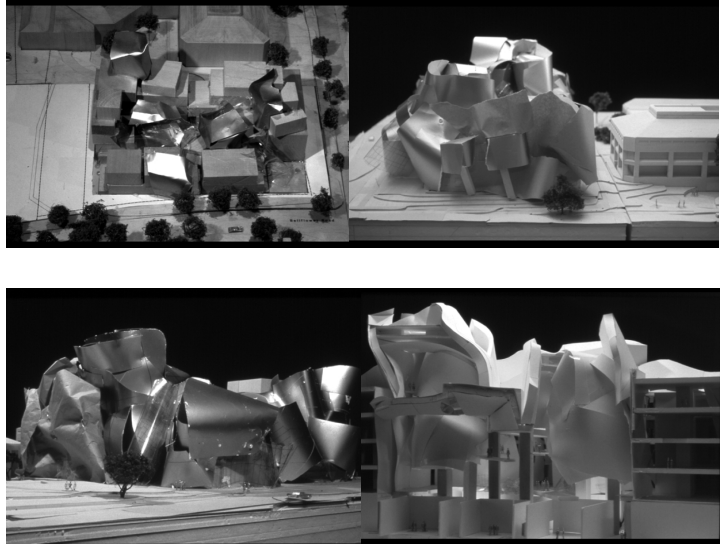
Another technique Gehry uses is to make his early design models purposely crude and unfinished. He calls these “shrek” models, which is Yiddish for “frighten.” These early models are not just for the design team in his studio, but are shared with the client as well. It is another way to let the client know that what they are seeing is not the design, but a marker along the way. During the Lewis Building project, Frank Gehry often would say about a model he was presenting to the university team: “This is not what we are doing,” and it was difficult to appreciate what he meant until we followed the design as it evolved through dozens of iterations. Some examples are shown in Figure 4.

In Frank Gehry’s world, knowing what the finished project will be like when you are beginning the work is a good reason to not do the project. Similarly, in the manager’s world, the first design idea should be suspect—it most likely is a familiar, default solution: “what everyone does” or “what we have always done”—and therefore not something to be especially proud of. Not knowing where you are going with a project may seem the height of financial folly to the conventional manager, but it is the mind-set that is most likely to open an established organization to new directions and modes of operations—which may well be a less costly course of action than the familiar, default alternatives.

A distinctive aspect of Frank Gehry’s use of models is that they are tools for thinking; not just ways to represent a design idea. The design idea emerges in the process of constructing a model, with Frank Gehry and the project designer both actively involved in shaping and reshaping the models as they evolve. It is a form of thinking with their hands that allows them to experience the perceptual, emotional, and aesthetic feel of the building as they are thinking their way through the designing of it. The expectation of

Figure 4

Some design study models.



continuous change is built into the design process by their simultaneous use of multiple models—each one different from the others. The models themselves become the record of the design process. No one in Gehry's studio first draws a design and then builds a model of it, as often happens in other architects' offices. Drawings are only made after a physical model of the design is quite far along into being crystallized, and when the model is digitized into three-dimensional software from which conventional, two-dimensional drawings can be produced.

Frequently, in discussions with designers as well as managers, we hear them make reference to the importance they place on their intuitions. But where do these intuitions come from? Or, put differently, why do they come when they do? One possible answer is suggested in the work of the architect Maya Lin, who reports that her intuitions often occur when she is working with her hands—sometimes on models, sometimes at the site.<sup>12</sup> Joe Paridiso writes that, while we can understand concepts and ideas through literature and diagrams, a deeper kind of understanding comes from physically engaging with an actual object: "It stimulates the kind of intuition that is often critical to a designer." We are not suggesting that managers should trade their world of concepts and abstractions for one of sketches, physical models, and their associated intuitions, but we do believe that managers can expand their ability to create and appreciate good designs in their own work if they are open and engaged with both worlds. Indeed, Kant observed that when the two worlds of concepts and images merge, visualized thought is achieved. That, in turn, he considered access to "the real basis of nature."

12 F. Collopy, "I think with my hands": On Balancing the Analytical and Intuitive in Designing" in R. J. Boland and F. Collopy, *Managing as Designing* (Palo Alto: Stanford University Press, 2004), 164–168.

## Love and Constraints

Design ideas have a special attraction for their creators, especially if they seem to be good ones. The temptation is to believe that a good design idea is worth committing to, and to focus on perfecting it. Once a design idea has captured us in this way, it is hard to give it up. Thus, Frank Gehry and his associates are explicit about the need to resist falling in love with an idea. They keep from falling in love by consciously treating every design idea as a step on the road, and not as the final destination. By saying: "This is not what we are doing ..." is a way to let clients know that the models they are viewing will change—perhaps dramatically—when they see the project again. But it is also a way for the design team to remind themselves that they are on a search, which requires them to not fall in love, but to keep searching, and to try other approaches. This paradoxical response to appealing ideas (avoiding an attachment to them) is mirrored by Gehry's response to the unappealing reality of constraints (embracing them).

In management, constraints are a hindrance to be overcome, but in Frank Gehry's practice, constraints are what make a design problem unique and worthy of their best efforts. Embracing constraints helps to overcome the temptation to fall in love with an idea too quickly, since only a truly great idea can "solve" a strong set of constraints. A good example from the Lewis Building is a request that surfaced early on during Gehry's work with the faculty to define program requirements. One faculty mentioned that in the tiered classrooms it would be desirable to have an entrance at the front of the room, where faculty and guest speakers would enter, and also to have an entrance at the rear of the room for students who arrive late. This seems like a simple request until you consider that mock-ups indicated that the maximum drop in our tiered classrooms should be about six feet from the front to the back of the room. Because there was going to be fifteen feet between floors, having an entrance at both the front and back of the classroom was not a simple task at all.

The "effective," modern manager simply would have said: "We can't do it," and moved on to putting an entrance at the front or rear only. But the Gehry team took this difficulty as a challenge, and kept it as a constraint. It led them to consider different floor heights in a section of the building that later evolved into a student lounge and study room area. Creating the dedicated student area offered students a sense of owning space in the building, and asserted their centrality to the school. It also allowed a platform for launching bridges to the tiered classrooms across the open atrium, so that students could enter the backs of classrooms as the faculty had requested (Figure 5). Embracing the two-entry constraint led them to think about varying floor levels in a section of the building, which then opened up the possibility of private student spaces, which set the conditions for other, unexpected design elements which not only met



Figure 5  
Atrium bridge in the P. B. Lewis Building.

the constraint, but strengthened the appeal of the building to students, symbolized their relation to faculty, and opened the way for a dramatic aesthetic element. So the embracing of constraints not only made the design problem more interesting, it also allowed for serendipitously inventing new and valuable elements in the design.

### Concluding Thoughts on Lessons for Organization Leaders

Frank Gehry and his associates know that many of the things they are able to do in their design practice are possible only because of the unique “starlike” status that he has attained in the world architectural community. It probably is true that other architects might not be as successful in adopting his techniques, and that they operate under a different set of “rules of the game” in their projects. But it is our contention that elements of his design practice can be generalized to the leaders of organizations that are seeking to innovate substantially and successfully. It is because his practices are so much at odds with the standard management procedures in most organizations, and with most managers’ ingrained sense of how they are expected to behave, that they could have such a transformative power for organizations and their leaders.

The possibilities for transformation in organizational leadership begin with the adoption of a design attitude. For organizational leaders, this means a shift away from empty platitudes about “goals” as normally conceived by management. By this we mean that typical organizational goals to grow by a certain percent per year, or to produce profits of a higher level than past years, really are empty statements that carry no design attitude with them. Such goals are excuses for stereotypical behaviors (buying or selling units of the firm, reducing “headcount,” centralizing, increasingly detailed accounting and budgeting systems, etc.) and inimical to innovation or creative problem-solving. Adopting a design attitude, in contrast, sets a higher order type of goal for an organization, that of seeking new ways to achieve human betterment in their domains of expertise. Adopting a design attitude is a way to energize organization members to seek the ideals that lay behind their stated mission—to ask what is their real purpose, and to believe they can create better ways of achieving it. A design attitude enables leaders to set visions that inspire others to strive beyond normal expectations in creating a future they can be proud to live in.

The design attitude includes an expectation that an organization’s familiar language will be subject to scrutiny, and that new vocabulary elements are expected as an emergent outcome of seeking to create a more desirable state of affairs. If the designing is successful, it will change the language that they and others use to approach the world. It will introduce new vocabulary elements that enable new possibilities for making meaning, and for making lives meaningful, in the world.

Part of the design attitude for leaders is to make a conscious effort to resist closure of a design problem and to maintain an open and liquid flow of design ideas. This includes explicit efforts to develop multiple models, theories, and conceptualizations of their business, their markets, their environments, and their competitors. It includes being wary of falling in love with what at first glance seems to be a good idea, to recognize and creatively respond to constraints, inside and outside of their firm, and, above all, to seek the highest and broadest form of functionality in their organization process and products. The design attitude seeks a functionality that is never fully realized, and is always possible to expand by including new realms of human experience. Functionality begins with a desire to achieve efficiency and effectiveness in a traditional sense, and expands to include an enlarging circle of concern for emotions, customer experiences, ethical behavior, environment, cultural norms, and aesthetic appeal. In a sense, the open-ended search that animates the design urge is a search for improved functionality, with functionality taken as a betterment of the human condition.

Our study also shows that, like the search for functionality, organizational designs are never complete. They are not finished things, but processes in the making—human enactments that continue to shift between liquid and crystal states, in a dialectic between crystallization and liquidity created by both applying doubt and engaging in action (i.e., reconceiving things abstractly while giving shape to ideas through prototypes) over and over again. This is better than assuming one model for organization design at the outset, and then moving quickly to reify it, or designing the organization without any model through random trial-and-error learning. The trick in keeping designs moving is not to mistake the models for reality, and to approach them as a means of exploring and imagining alternative realities. The benefit of applying doubt and suspending closure is well known from studies of software development.<sup>13</sup>

The design of large software systems is representative of the type of complex organization design attempted by their leaders today. The software design literature clearly shows that the design time spent in a liquid state, exploring alternatives and requirements early on in the process, results in fewer “bugs” and software repairs later on.<sup>14</sup> The net effect is that less time and money is spent on the overall project. But software developers do not know how to make that happen all the time and, in most cases, the love for crystallizing one design or designing blindly by random search wins out. This is a result of a managerial mind-set and an organizational reward system that favors design as a noun (“Where is the running code?”), and suppresses design as a verb (“Are we designing for the right functionality in our environment?”). As a noun, design is quick and not compelling, so that managers can get on with their “real” job of tracking accomplishment to goals, calculating returns on investment, and so on.

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13 K. Lyytinen, “Different Perspectives on Information Systems: Problems and Their Solutions,” *ACM Computing Surveys* 19:1 (1987a): 5–44; K. Lyytinen, “New Challenges of Systems Development: A Vision of the 90s,” *Data Base* 12:2 (1989): 1–12; B. Curtis, H. Krasner, and N. Iscoe, “A Field Study of the Software Design Process for Large Systems,” *CACM* 31:11 (1988): 1268–1287.

14 K. Lyytinen, “Different Perspectives on Information Systems: Problems and Their Solutions.”

Like software design, organizational design is recursive in nature. Recursive design emphasizes the criticality of meta-design (i.e., sustained flexibility in the functionality achieved by the design) as good design practice. Meta-design helps to keep the design continuous and open, moving between liquid and crystal states. We argue that all good organizational designs should be able to continue to be redesigned, and to change their form over time. That is, the elements and configurations set in place by managerial design should keep the organization in dynamic motion. The foregrounding of motion and variation in organization designs (as things) has many connotations in the literature like *bricolage*, improvisation, emergence, and adaptation. If meta-design is not achieved, an organization is dead and lacks the capability to inspire and move us. For example, Frank Gehry emphasizes the practical nature of his designs, and is aware that his designs can be accommodated over time and made parts of everyday human activity.

I think in the world you are in, you should expand the word “functional” to encompass more than just the simplistic notion of doing something well, but to encompass all these other issues. When I make a building, I want it to feel easy on the hand for people. This means we give a lot of attention to all the little details of how the building will feel to them, from door handles to passageways. I think about how to give people a kind of handrail, so that the unfamiliar can become familiar to them.<sup>15</sup>

A similar need for continued design and meta-design recently was observed in McGann’s study of the continuous evolution of organizational practices and software designs.<sup>16</sup> Only in situations where users continued to design with and around the software applications, and the application enabled this to happen, did the organization reap significant benefits from deploying the computer systems.

Frank Gehry and his associates have showed us a number of heuristics to build and keep a design attitude. No doubt a study of other leading designers’ practices would uncover more. Managers who open themselves to the design attitude, and set organization reward systems to encourage it, will find that organization change comes easier, is more effective, and reinforces itself over time. In short, it’s worth trying.

15 F. O. Gehry in R. J. Boland and F. Collopy, *Managing as Designing*, 34.

16 S. McGann, “Coping with the Unplanned: The Dynamics of Improvisation in Information Systems Evolution within and across Organizational Boundaries” (Ph.D. thesis, Department of Information Systems, Case Western Reserve University, 2004).

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