Introduction: Design and Organizational Change

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In June 2004, the Stern School of Business at New York University hosted a small working conference on the theme of "Organization Design." The National Science Foundation sponsored the conference for the purpose of developing a scientific base for organization design, broadly defined as "explicit efforts to improve organizations." Like "Managing as Designing," the groundbreaking conference held at the Weatherhead School of Management at Case Western Reserve University in 2002, the NYU conference was part of the growing trend in business schools to investigate design—often under the term "innovation"—and its role in management and organizational change.[1] For designers who have begun to explore the impact of their work on organizations and organizational life, as well as the impact of organizations on their own work, the trend and the conferences are important. They further elevate the idea that organizations are products, as well as the idea that, like other products, organizations can be designed by intelligent forethought and appropriate action.

The idea that organizations are products of design is not entirely new. The rise of management and organization theory in the twentieth century is, in essence, the history of the rise of an important branch of design thinking, based on the broad goal of finding ways to improve organizations and their effectiveness. However, an explicit concept of design emerged only slowly in this area, and in isolation from the development of design in other applications. Herbert Simon's *Administrative Behavior* (1945) was the first major work to make design an explicit concept in management.[2] It focused on design as an activity of decision-making and advanced ideas about communication and information that revitalized the field of management and organization theory in many ways. Indeed, the ideas developed in this book also were the genesis of *The Sciences of the Artificial* and the concept of "design science," as Simon understood it. Subsequently, Jay R. Galbraith's *Organization Design*, a book that applied some of Herbert Simon's ideas about organizational design, offered a concrete method of "structural design" based on information and decision-making that continues to influence management practice. For the most part, however, the study of organizations focused on theory and empirical research. The idea of transferring research results into practical action was, as noted by Roger Dunbar, William Starbuck, and the other organizers

1 Richard J. Boland and Fred Collopy, *Managing as Designing* (Palo Alto, CA: Stanford University Press, 2004).

2 Herbert A. Simon, *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization* (New York: The Free Press, 1945).

of the NYU conference, implicit or merely "perfunctory addenda" in organizational theory. In short, academic discussion neglected the significance of design and the rich variety of design practices that could affect organizational life and lead to new organizational structures and processes.

The conferences "Managing as Designing" and "Organization Design" helped to open the way for serious academic consideration of the work of designers who focus on strategy, communication, information and decision-making, new product development, interaction and service design, vision creation through "strategic conversations," and other interventions in the life of organizations. The conferences recognized that organizational change could come about through the practical activities of design and, most important, that "design" should be explored more explicitly and from a broader range of perspectives than it had in the past. This is what makes these conferences watershed events not only for those in management and organization theory, but also for those working in other branches of design that now see their work as potentially leading to organizational change.

Since the 1990s, a small but growing number of designers and design consultancies have become competitive with management consulting firms in certain areas of work. More recently, some of the leading management consulting firms have begun to look at design as a tool that may be included within their own practices, with or without deep understanding of the nature of design. The enthusiasm of both movements is infectious. Indeed, design could offer a new way to understand and practice management, leading to more human-centered organizations.

Enthusiasm alone, however, will not be enough to sustain interest in design, particularly when the concept of design as a discipline of thinking and making is still widely misunderstood or poorly understood. There will have to be tangible benefits, and the benefits will have to be understood as a clear outcome of design thinking. This requires support from a new kind of design research, oriented directly toward the influence of design on organizational life. As part of this effort, there will have to be better understanding of the variety of approaches to design, grounded in sound theory and in the diversity of effective strategies and methods of design practice. The common form of design thinking that is evident in Jay Galbraith's work and in other less explicit forms of design that are presupposed or implicit in organization theory does not cover the wide range of approaches to design that are emerging in practice today.

As Edward A. Snyder, Dean of the Graduate School of Business at the University of Chicago, recently remarked: "Theory and practice go together. People who understand theory are more likely to understand practice—today and tomorrow." [3] Except for thought leaders in the field, this recognition has come only slowly in

3 Quoted in *Business Week* (October 23, 2006): 64.

traditional branches of design. However, it is entirely evident now as design moves into new domains of application. The intuitive sense of many in the design community that design thinking has potential value for organizational change will have to be supported through research conducted in a variety of disciplines including design, itself, and through explicit discussion of the relationship of theory and practice.

The organizers of the NYU conference wanted to bring together two kinds of ideas in order to advance research and overcome the division of theory and practice that often has characterized the study of organizations and efforts to improve them. They wanted ideas about "how organizations should look" (the nature of the product to be produced) and ideas about "processes for creating organizations with desirable properties" (the design practices that could produce those products).[4] The former ideas fit well within the scope of organization theory, which always has sought to understand the nature of organizations. The latter ideas correspond to design, in whatever form it may be conceived.

Furthermore, the organizers wanted to focus on "the organizational design implications of research finding," and foster "communication among the diverse approaches to design" represented in the meeting and in the broader design community. To this end, the conference brought together leading figures in organization theory from around the world, but also included thought leaders from organizational design and other fields of design whose work was felt to have potential significance—primarily those from architecture, industrial design, and interaction design.

Some of the papers from the "Organization Design" conference were developed and published in one of our sister journals, *Organization Science,* in a special issue on "Organizational Design."[5] This is consistent with the goal of strengthening the scientific basis for organizational design by comprehensive studies of organizational form and specific design methods and techniques—typically quantitative studies, but some qualitative studies, as well. However, another goal is served by focusing attention on some of the *ideas* and *methods*—the *practices*—of designers who have attempted to change organizations. This is the purpose of the current special issue of *Design Issues,* which continues the theme advanced in "Managing as Designing" and "Organization Design," but with a different perspective than that of the development of organizational theory. The goal of this special issue, "Design and Organizational Change," is to emphasize design as a professional practice that is consciously moving into the domain of organizational design and organizational change, drawing from areas of design practice that are more closely identified with design as it is commonly understood in the design community, including architecture, industrial design, information design, and interaction design. As organizational theory and

4 Roger Dunbar, William Starbuck, et al. "Call for Presenters, Recorders, and Participants, Conference on Organization Design, New York University, June 4–6, 2004."

5 See *Organization Science* 17:2 (March–April 2006). Special issue: "Organizational Design."

management come closer to design, it is important for designers to consider how their work, sometimes in traditional areas and sometimes in new areas of application, can bring about organizational change. Thus, the articles in this issue explore design practices and the ideas or theory that support them. Some of the papers presented here were delivered at the "Organization Design" conference, but other papers are included which develop the theme in ways that are related to the original conferences, but are representative of some of the other efforts of designers to affect organizational life.

The first article is "Managing as Designing: Lessons for Organization Leaders from the Design Practice of Frank O. Gehry," written by Richard Boland, Fred Collopy, Kalle Lyytinen, and Youngjin Yoo. In June 2002, Boland and Collopy organized the "Managing as Designing" conference that initiated wider academic interest in the possibilities of new design thinking in the practice of management. In this article, they continue to explore the theme of "design attitude" illustrated in the design and architectural practices of Frank Gehry. One of the key features of this article is important for understanding the development of design theory. The authors point out that in Herbert Simon's theory of decision making, there are three elements: intelligence, design, and choice. They argue that subsequent use of Simon's ideas in management reduced the three elements to a single element: choice. This distorted the understanding of Simon, and led management studies away from the role of design thinking in Simon's work. They maintain that the return to design in organizational studies is a return to a proper balance, with greater attention to design thinking.

To develop this idea, the authors define design attitude as "a thorough going 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 note how this attitude spreads among all of those who participate in Gehry's design projects, and they observe how important language—the language of the project—is in spreading this attitude. The article identifies characteristic features of design—for example, visualization, and model making—that distinguish design from the ordinary practices of managers. Boland, Collopy, and their colleagues have the perspective of clients and management researchers, yet they succeed in presenting design in a compelling way that is strikingly relevant to management practices and, at the same time, throws light on the nature of design.

The next article takes a design practice that has received significant attention over the past ten years, and turns it in a new direction. Sabine Junginger's "Product Development as a Vehicle for Organizational Change" investigates the possibility that product development—usually regarded as the way an organization adapts to the external environment of the marketplace—may lead to organizational change within an enterprise. The novel approach

taken in this article is supported by a careful discussion of the nature of product development, and then by an investigation of the ways that product development may be used by managers to bring about organizational change.

Case studies play an important role in professional fields such as law, business, and medicine, but their proper role in design education and design research has received relatively little attention. Compared to other fields, there are few case studies in design, and many project descriptions merely pass as case studies, without an understanding of the nature of a case study, its purpose, or structure. In a Reflection, Maggie Breslin and Richard Buchanan discuss the potential of the case study method of research and teaching for design. They suggest that the field of design and design education is ready for a serious development of the case study method as a bridge or transition from theory to practice—and back again to the strengthening of theory.

This brief essay is followed by a series of articles that employ variations of the case study method. Each one identifies and explores a phenomenon in design and organizational change, describes an example of new design practice, demonstrates significant connections in organizational life, and prepares the ground for further investigation. In a sense, all of the articles are exploratory case studies, focusing attention on aspects of theory and design practice that deserve further investigation. In "ZIBA Design and the FedEx Project," Maggie Breslin, a designer and researcher at the Mayo Clinic, demonstrates the use of the case study method in an account of ZIBA Design's work with FedEx, exploring the issue of "fourth-order design," a characterization of design work at the level of environments, human systems, and organizational change. Breslin shows how the case study in design may relate theory and practice, as well as illuminate research issues in the use of design to bring about organizational change.

Organizational change often is viewed in the context of for-profit organizations, but it can also be socially significant when applied to nonprofit institutions. We already have seen this in the context of educational institutions—for example, the impact of Gehry's architectural practice on the Weatherhead School. It also is worth noting that the NYU "Organization Design" conference used, as an exemplary case, NASA's Next Generation Launch Technology program, with ten representatives from NASA as participants in the discussions. The use of design thinking in the development and improvement of governmental agencies is an emerging area of opportunity for designers.

The scale of this opportunity is evident in the next article, "Design in the Australian Taxation Office," by John Body, former Second Commissioner in the ATO, and now principal of his own design firm. Body provides a detailed account of how design thinking is being brought to bear on the problem of the administration of

taxation in the Australian context. He explains how design offered a way of converting strategy into action, with the goal of making the taxation system clearer, easier to use, less expensive, and more personalized—all serving the broader purpose of increasing trust and compliance among citizens. Body details the concepts and tools of design employed by the Taxation Office, and then describes the management effort that brought design to life in the organization. He also discusses the participation of designers in the project, including Jim Faris and design researcher Darrel Rhea, principal of Cheskin Research. His account is from the perspective of the third year of what is estimated to be a ten-year effort to build a design capability within this important government institution—an effort that is being observed by other governmental agencies within Australia and elsewhere in the world.

The next article also is about the Australian Tax Office, but from a different perspective and with a different problem in mind. In "Information for Strategic Thinking: Health of the System Reports," Julian Jenkins explains a strategy for supporting strategic thinking in organizations. This article harkens back to the first article by Boland and colleagues, with the central theme of *intelligence*—in this case, information—*design*, and *choice*. It also offers a subtle return to one of the central themes of the work of Horst W. J. Rittel: information, argumentation, and the "issue-based information system" known as IBIS. Jenkins makes no reference to Simon or Rittel, but rhetorical thinking is clearly a central feature and part of the theoretical framework of this article. The design challenge involves not only a change in the structure of information reporting, but also a change in behaviors that orient managers toward strategic issues that often are obscured in traditional information reports. This approach is significant because it shifts the concept of reporting from the mere accumulation of data to the use of data within purposeful argumentation. In effect, it places strategic argumentation at the center of management work and at a key place within organizational life.

One of the features of these articles—a feature that makes them useful for teaching as well as consideration from the perspective of professional design practice—is the combination of a theoretical framework and practical design work. The theory in each case is embedded in the case writing, sometimes requiring conversation with the text to bring it fully to light. But the problems and practices of the designers also are presented in enough detail to see how theory and practice work together in the concrete circumstances of practice.

This pattern also is evident in the final article, "High-Reliability Organizations: Changing the Culture of Care in Two Medical Units," by Daved van Stralen, M.D. This is not a typical article on a typical design problem and solution. Indeed, professional designers played no role in designing and developing the two medical care facilities that are discussed by Dr. van Stralen. Yet the article

presents a set of design issues and design ideas that are exceptionally relevant to new forms of design practice—for example, design that involves human interaction, substantive forms of "service design," and complex human systems. Furthermore, the article demonstrates the "design attitude" that Boland and his colleagues discussed in "Managing as Designing." This article is a fitting conclusion to a special issue on design and organizational change, because it demonstrates how participants in a system may design their own practices and environment.

The term "High Reliability Organization" (HRO) refers to a human system that must be exceptionally reliable in an environment of high risk, uncertainty, and potential catastrophe. A common definition is that an HRO is "an organization that consistently avoids catastrophe in an environment where accidents can be expected because of many risk factors and the complexity of operation they involve." Karl Weick and Kathleen Sutcliffe provide these examples of HROs: nuclear power generation plants, naval aircraft carriers, chemical production plants, offshore drilling rigs, air traffic control systems, incident command teams (response teams for natural or human-made catastrophes such as hurricanes and hazardous material spills), wild land firefighting crews, hospital ER and Intensive Care units, and investment banks.

Research in this important area is developing quickly, with potential insights that may affect the design of other types of organizations. However, van Stralen's article presents the design and development of a pediatric intensive care unit and a pediatric nursing home. His account demonstrates how personal experience in a related, but different environment, along with several key theories, can be brought into practice through effective leadership and design thinking. This article originally was presented at the NYU conference on "Organization Design," and it is presented here in a slightly revised form.

In the context of *Design Issues,* van Stralen's article is an example not only of the use of theory in practice, but of practice as a kind of design activity embedded in a complex human system. Though Dr. van Stralen uses the term "design" quite sparingly in his account, the reader will recognize some of the most challenging paradoxes and issues faced by designers when they attempt to bring about cultural change within an organization. For example, there is the paradoxical situation of the leader who must facilitate change, but must also ensure the distribution of agency among many participants, in effect giving up significant authority to others. Then there is the issue of complex, chaotic systems that, by their nature, come close to catastrophe, yet must be sustainable and sustained in the face of high risks and uncertainty. And there are essential issues of social interaction that must be understood and navigated. Dr. van Stralen clearly understands and explores the idea of social interaction and its central place in bringing about organizational change through

conversation and participatory design. Furthermore, his article illustrates how a cultural system can become self-designing—designing itself from the inside, without explicit intervention by professional designers. While van Stralen does not refer explicitly to the concepts and principles of interaction design or fourth-order organizational design, he shows how a design attitude, intuitive design practices, and human-centered design values can bring about effective organizational change. This is reflective practice in action.

The articles selected for this special issue all are examples of "fourth- order" design: the design of organizations, environments, and systems that serve the diverse purposes of human beings. They represent different approaches to the problem of organizational change, and they all employ an expanded concept of human interaction that is elevated from individual interactions to collective interaction in complex environments. However, they also demonstrate that the new, expanded forms of design practice do not abandon the traditional concerns of form-giving and making that have defined design in the past. It is the concept of form that has grown more supple and complex, embracing the social and environmental context of design. Without the integrity of form-giving and making that lies at the core of design, what can the designer do that is not already within the sphere of other disciplines? Together, these articles represent a new area of design practice and design research that will grow in importance as the value of design is recognized.