

11-15-2006

Design With a Positive Lens: An Affirmative Approach to Designing Information and Organizations

Michel Avital

University of Amsterdam, michel@avital.net

Kalle J. Lyytinen

Case Western Reserve University, kalle@po.cwru.edu

Richard Boland Jr

Case Western Reserve University

Brian S. Butler

University of Pittsburgh, bbutler@katz.pitt.edu

Deborah Dougherty

Rutgers University

See next page for additional authors

Follow this and additional works at: <https://aisel.aisnet.org/cais>

Recommended Citation

Avital, Michel; Lyytinen, Kalle J.; Boland Jr, Richard; Butler, Brian S.; Dougherty, Deborah; Fineout, Matt; Jansen, Wendy; Levina, Natalia; Rifkin, Will; and Venable, John (2006) "Design With a Positive Lens: An Affirmative Approach to Designing Information and Organizations," *Communications of the Association for Information Systems*: Vol. 18 , Article 25.

DOI: 10.17705/1CAIS.01825

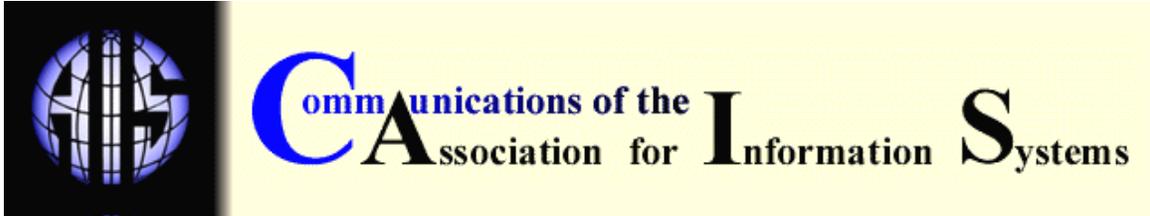
Available at: <https://aisel.aisnet.org/cais/vol18/iss1/25>

This material is brought to you by the AIS Journals at AIS Electronic Library (AISeL). It has been accepted for inclusion in Communications of the Association for Information Systems by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Design With a Positive Lens: An Affirmative Approach to Designing Information and Organizations

Authors

Michel Avital, Kalle J. Lyytinen, Richard Boland Jr, Brian S. Butler, Deborah Dougherty, Matt Fineout, Wendy Jansen, Natalia Levina, Will Rifkin, and John Venable



DESIGN WITH A POSITIVE LENS: AN AFFIRMATIVE APPROACH TO DESIGNING INFORMATION AND ORGANIZATIONS

Michel Avital, Case Western Reserve University (avital@case.edu)
Kalle Lyytinen, Case Western Reserve University
Richard J. Boland, Case Western Reserve University
Brian Butler, University of Pittsburgh
Deborah Dougherty, Rutgers University
Matt Fineout, EDGE studio
Wendy Jansen, University of Amsterdam
Natalia Levina, New York University
Will Rifkin, University of New South Wales
John Venable, Curtin University of Technology

ABSTRACT

Design forms one critical paradigmatic view that pervades organizational studies, management, and information systems research. Building on the discussions in the first *Working Conference on Designing Information and Organizations with a Positive Lens*, we chart the potential contribution of positive design to the shaping of organizations, work processes, artifacts, communication networks, and information technologies. The figure of speech "Design with a Positive Lens," or in short "Positive Design," connotes here a distinctive perspective on design that is less focused on the detection of errors associated with gaining control and more concerned with human-centered design associated with the shaping of hopeful organizations and a thriving future. The paper examines how positive design can contribute to the design of information systems and organizations as related to five broad-scale areas: design of high performance work processes; positive design methods and techniques; cooperation and collaboration across boundaries to promote positive change; positive organizational design; and design science and practice. In this paper we aspire to promote the emerging cross-disciplinary discourse between scholars and designers that will foster positive organizational and technological design.

Keywords: systems design, organizational design, positive design, positive lens, appreciative inquiry, positive organizational scholarship

"You've got to ac-cent-tchu-ate the positive
E-lim-i-nate the negative
And latch on to the affirmative
Don't mess with Mister In-Between"
(Johnny Mercer)

I. INTRODUCTION

Similar to the ideas of positive psychology (Seligman and Csikszentmihalyi, 2000), which turns attention away from the treatment of dysfunctions and toward the encouragement of human strengths, the disciplines of information and organization can develop a positive stance toward the design of information, organization and technologies. Building on the discussions in the first *Working Conference on Designing Information and Organizations with a Positive Lens*¹, we chart the potential contribution of the positive lens to the shaping of organizations, work processes, artifacts, communication networks, and information technologies. The figure of speech "Design with a Positive Lens," or in short "Positive Design," connotes here a distinctive perspective on design that is less focused on the detection of errors associated with gaining superior control and more concerned with human-centered technologies associated with the shaping of hopeful organizations.

Design forms one paradigmatic view that is critical for organizational studies (Simon, 1996), management (Boland and Collopy, 2004), and information systems research (Hevner et al., 2004). Combining the potent thrust of the positive lens with the rejuvenating idea of design as a generative and formative act opens new horizons for invigorating organizational processes, technological support, and informing practices. In this paper, we discuss potential issues, implications, and contributions that may flow from adopting a positive stance toward the design of information, organizations, and technologies as they were debated at the conference.

Adopting a positive lens can affect the ways managers, designers, and users frame their discourse and consequently shape organizations and information systems. For example, Cooperrider and Avital (2004) provides a collection of accounts that demonstrate how Appreciative Inquiry, through its positive rhetoric and strengths-based approach to organizational change, has touched the lives of thousands who have applied it to create better lives, better organizations, and better communities. Its impact on the practices and disciplines of information design is also nascent and growing (e.g., Avital, 2004). We surmise that positive scholarship such as appreciative inquiry, when applied to information systems and organization design, will strengthen attention to social context, promote the use of cross-disciplinary tools, and emphasize ethical considerations associated with the act of systems design.

Positive design forms part of a larger paradigmatic movement that defines itself as a positive way of knowing (e.g., Cooperrider and Srivastva, 1987; Seligman and Csikszentmihalyi, 2000; Cameron et al., 2003.) It aims to examine and enhance positive modalities in human dynamics, forms of organizing, practices, relationships, and programs of discovery and learning. The initial insight to apply a positive lens to design stemmed from the straightforward observation that, although researchers and practitioners in our field aim to enhance or improve an object of study or an underlying design, our focus of inquiry is often one-sidedly on identifying problems, failures, and other culprits that ought to be fixed, improved, eliminated, or prevented. For example, analyzing what went wrong in information systems in order to learn how to make them successful pervades much of the discourse on system development, but as suggested by some evidence from the field, this alone has not been very effective (e.g., The Standish Group, 2001).

Building on Avital, (2005) one explanation to the prevalent study of malfunctions and fixes is the presupposition that success and failure are binary opposites, and consequently that any

¹ The first *Working Conference on Designing Information and Organizations with a Positive Lens* brought together a multidisciplinary group of approximately 70 researchers and designers with backgrounds in management, information technology, and design sciences to exchange ideas and explore positive approaches for their research and practice. The event was conducted in November 2005, at Case Western Reserve University and was co-sponsored by the Weatherhead School of Management and the Center for Business as an Agent of World Benefit. For further information, including papers and selected presentations, see <http://weatherhead.case.edu/design/>

undertaking will be successful if all possible pitfalls are circumvented. However, because “success” is not the logical opposite of “failure,” the study of what went wrong may serve those who aim to avoid failure, but it still constitutes a poor foundation for those who strive to be at their best. Though success and failure are related, examining one does not teach us what we need to know about the other. Thus, positive design strives to explore what leads to exemplary designs rather than to prescribe prevention tactics to malfunctions and failures.

One way to explain what positive design is would be to say what it is not (Table 1). Design with a positive lens implies that the guiding design questions focus on searching a generative core by asking what gives life as opposed to a searching for description and explanation by asking what is and why. Positive design focuses on desirable scenarios and visions of the future by asking what could and might be as opposed to an attempt to predict the future by asking what will be. Most notably, the guiding questions are explicit about a conscious ethical stance and personal choice by asking what should be, and thus reject the academic ethos that extols being unattached, impersonal, and attempting to avoid ethical controversies. Design with a positive lens implies that the approach is synthetic and value-seeking in contrast to being analytic, error-focused, and deficiency-seeking. The process of design with a positive lens is organic, iterative and open-ended in contrast to being subsumed by decision trees of design choices with a clear beginning and end. Finally, the underlying objective of the design is about creating and maintaining virtuous cycles for the benefit of all stakeholders in contrast to preventing or escaping vicious cycles.

Table 1. Distinct Features of Design with a Positive Lens

	Design with a Positive Lens is...	Design with a Positive Lens is <u>Not</u>...
Guiding Questions	- Asking what gives life - Asking what could/might be - Asking what should be	- Asking what is - Asking what will be - Avoiding challenging questions
Approach	- Synthetic - Appreciative, Value-seeking	- Analytic - Judgmental, Deficiency-seeking
Process	- Iterative refinements - Infinite, Open-ended, Generative	- Straightforward linear process - Finite, Close-ended, Conclusion-seeking
Underlying Objective	- Aiming to promote virtuous cycles - Triple bottom-line	- Aiming to prevent or escape vicious cycles - Ignoring bottom lines

In this paper, we explore positive design and its possible effects on information systems and organizational design. Building on the discourse in the literature and the discussions in *Designing Information and Organizations with a Positive Lens*, we focus on the following five areas of interest:

- Positive work processes. This area focuses on the design of creative and high performance work processes, as well as on the changes in work processes, routines, and procedures as informed by the positive lens.
- Positive design methods and techniques. This area focuses on the effects of adopting positive design methods on the outcomes of information systems design, industrial design, and artifacts design.

- Positive collaboration across boundaries. This area focuses on collaboration enabled and necessitated by positive design across boundaries and inter-organizational relationships.
- Positive organizational design and organizational development. This area focuses on a positive spin on organizational theory and organizational development perspectives.
- Positive design science and design practice. This area focuses on possible influences of the positive lens on design as a discipline and on designing as a core activity.

These topic areas can be aligned with two design-related continua that currently shape information systems and organization design practices. The intrinsic-extrinsic orientation dimension can be classified on a continuum between being internally-oriented (i.e., within organizations) and externally-oriented (i.e., between organizations). The other one, the socio-technical orientation dimension can be classified on a continuum between being human systems-oriented (i.e., refers to values, norms, beliefs, and behavioral dispositions) and artifact-oriented (i.e., material or virtual objects). Figure 1 delineates the five areas of interest on the space that is formed by the combination of these two continua.

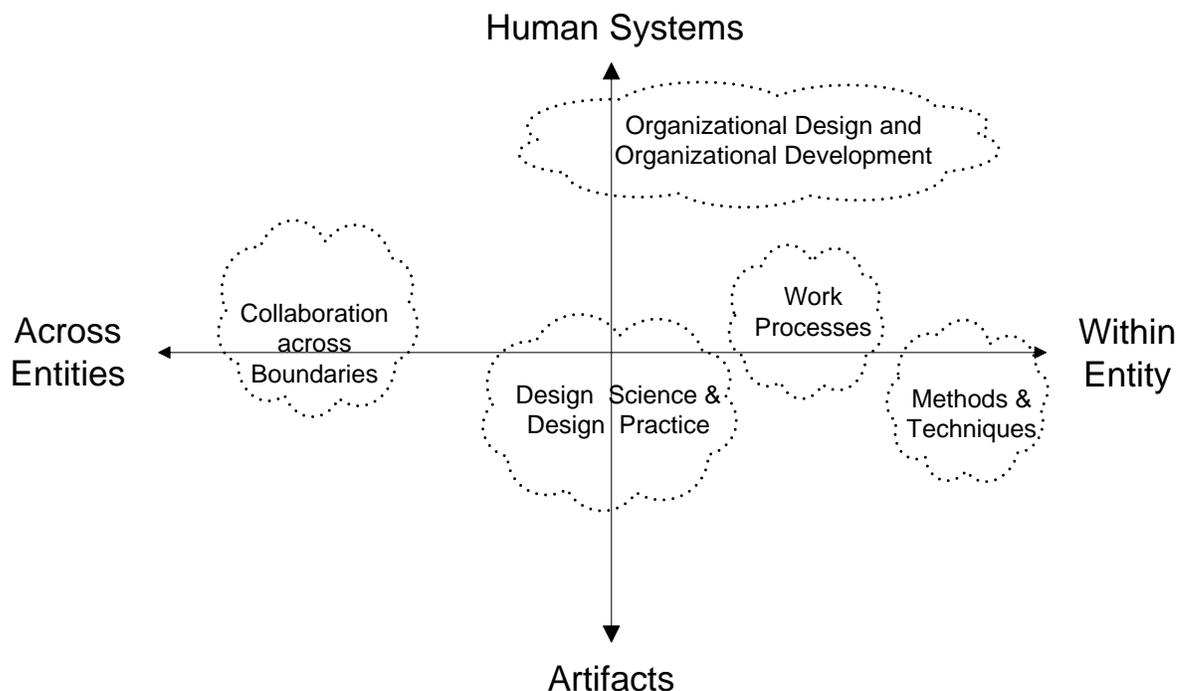


Figure 1. Emergent areas of interest in systems design thinking with a positive lens

The central goal of this paper is to identify how positive design can contribute to the design of information systems and organizations as related to these six topic areas. Thereby, the following sections attempt to:

- Reframe the discourses of socio-technical design based on the positive lens
- Explore design approaches that shape organizations and information systems to be more humanly satisfying and socially beneficial
- Identify interdisciplinary domains to foster collaboration in designing systems for organizational betterment
- Illustrate the use of the positive lens in different design settings

- Clarify the role of positive change in designing information technology for management and organizations
- Demonstrate that positive design practice is a product of participative efforts of multiple actors

II. DESIGNING WORK PROCESSES

In the context of ongoing organizational life, the positive lens is particularly useful when applied to designing organizational work processes, routines, and procedures. We argue that a necessary key for getting the work done, for generating future innovations, and for enhancing positive affect and job satisfaction in the workforce is designing work processes that account for the inherent requisite variety and provide sufficient slack. Furthermore, while the value of taking a positive approach is intuitively appealing, it is clear that it is not a panacea and that a theoretical perspective that defines its logic and explains its impacts is still emerging.

REQUISITE VARIETY AND SCAFFOLDING

One key issue in the design of work processes is overcoming the common mismatch between a work process as *designed* and a work process as *practiced* that often ensues in a disconnect between the aspired goals and the actual results (Pentland and Feldman, 2005). Considering the law of requisite variety (Ashby, 1958), it is naïve and probably counterproductive to design and specify work processes completely in advance. Over-specifying, that is, providing a detailed prescription of work processes, may stem from a desire for obtaining greater control over the process, increased efficiencies, coordination considerations, and the like. However, it disregards human nature and the inherent variety in human action that must be accommodated.

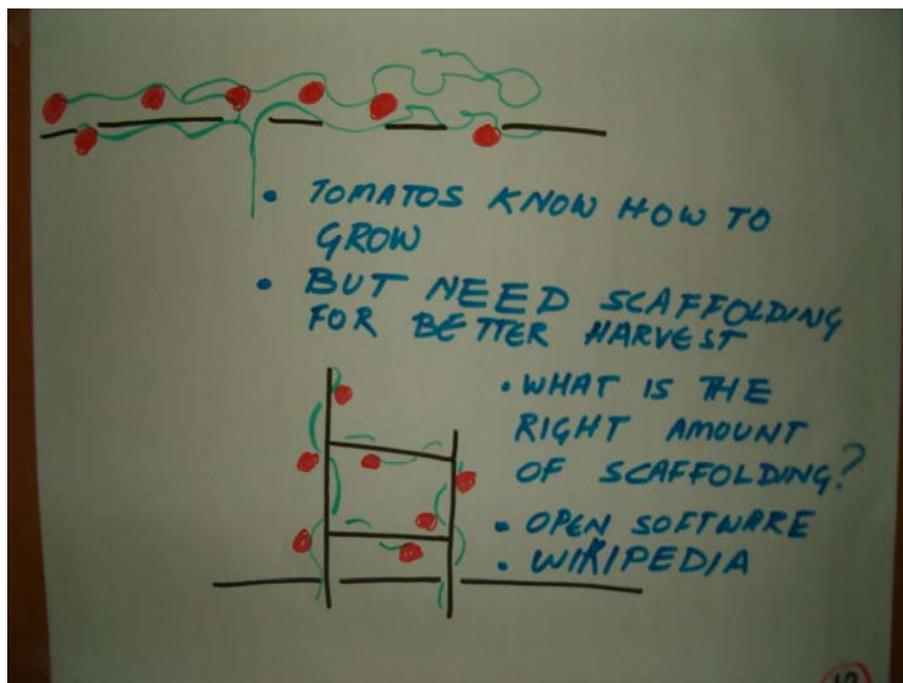


Figure 2. Balancing between Work Processes and Grass-Roots Generativity
(sketch by Suresh Bhavnani)

The humanistic and participative nature of the positive lens makes it an excellent approach for dealing with requisite variety in the context of work process design. For example, by encouraging ongoing grass-roots participation and contribution, Appreciative Inquiry can provide designers

with a framework for balancing between the extent of work processes specification and the need to allow for grass-roots generativity. It allows designing work processes and routines that are emergent, dynamic, and changing in the context of work and its enactment (Avital and Te'eni, 2006). Moreover, the positive lens is also conducive to developing technologies and artifacts that are flexible, adaptive, and if desired, enhance one's creativity and ability to make a difference (Te'eni, 2005).

Finally, as demonstrated repeatedly with Appreciative Inquiry in organizations, a positive lens is very effective in designing the *process* of organizational change (Cooperrider and Avital, 2005). We do not design organizations so much as we provide them with the proper condition to grow, and they grow themselves, as captured by the metaphor in Figure 2. However, we do design processes and ways of involving people, or not, and provide the scaffolding that supports what people do as individuals, as workgroups, as organizations, and as communities of practice (Stamps and Lipnack, 2005a).

AN AFFIRMATIVE PERSPECTIVE IS NOT A PANACEA

As organizations increasingly require some level of internal cooperation and grass-roots participation, there is clearly potential and benefit, if not the outright necessity, for the use of a positive lens in designing high performance organizational processes, routines, and procedures.

Keeping with the positive scholarship tradition that was established by Appreciative Inquiry (Cooperrider and Srivasta, 1987) and Positive Psychology (Seligman and Csikszentmihalyi, 2000), positive design builds on emphasizing value and possibilities and forms an alternative to *deficit thinking* that builds on identifying and rectifying problems and an ongoing search for remedies. Bear in mind that the positive lens is not offered as a panacea or suggested as a substitute for deficit thinking. Recognizing that deficit thinking is endemic to most current systems and organizational design approaches, the positive lens is offered as a dialectic alternative and *modus operandi* that in many instances can help designers to deliver effectively the desirable results (Figure 3).

How designers can obtain the benefits of the positive lens without overlooking detrimental pitfalls is still an area that deserves research and development. An affirmative appropriation of impartial design tools, such as Colored Cognitive Maps (Venable, 2005), may be just what is needed as a way to assess a design context from multiple perspectives, and then to reframe it with a constructive outlook that builds on the best there is. While we offer the positive lens, we also suggest that designers ought to shift away from the pervasive deficit mode of thinking, without either ignoring its potential or letting it dominate the situation. To adapt and prosper in a time of accelerating complexity, organizations need a far sharper and more conscious positive lens that drives a dynamic balance between work processes and grass-roots generativity (Stamps and Lipnack, 2005a).

III. THE EFFECT OF METHODS IN-USE ON DESIGN AND ITS OUTCOME

The effect of methods in-use is substantial on the resultant outcome of information systems design, industrial design, and artifacts design. Embedded in any design technique, methodology, or process are a myriad of assumptions about the nature of the artifact, the people involved, and even the process itself. As described above, positive design puts forward an alternative set of assumptions. In doing so it raises important questions about the nature of design. This section considers four themes that influence and shape design, design methodologies, and the resultant design products. Through these themes we examine possible prevalent challenges that positive design techniques might encounter and questions that they raise about the interplay of conceptions of information, organization and design.



Figure 3. The Positive Lens Provides an Affirmative Perspective, not a Panacea

DESIGNING DYNAMIC ARTIFACTS AND THE IDEA OF COMPLETION

In the design of organizations, systems, and artifacts, there is the notion of finality; that is, the idea of working towards a *finished* product. In this regard, '*design*' posits a condition or circumstance that requires attention, attenuation, and some kind of *resolution*. This resolution often results in an artifact that has permanence and, consequently, a static nature. The terms used to describe design processes from this perspective inherently limit its reach. This type of thinking does not appreciate, let alone recognize, the dynamic nature of designed objects which arises from both the complex nature of the objects and their situation in ever-changing contexts over significant lifetimes. Bounding the design process at an early stage of an artifact's lifecycle ignores the role that design activities can play in the ongoing life of the product or system and its subsequent evolution in terms of appropriation, adaptation, modification, and potential disuse.

Recognizing the dynamic nature of designed artifacts challenges the idea of completion for both the artifact and the process. It also implies that designing dynamic artifacts requires strategies that anticipate and account for change. Beard (2005), building on an idea in a book by Stewart Brand (1994) entitled *How Buildings Learn: What Happens after They're Built*, suggests a design strategy that can be applied to developing systems and organizations. The underlying premise asserts that in order for buildings or any artifacts to endure they must adapt.

One strategy for adaptation is termed '*shearing layers*' which views a design object as a composite of temporal layers or assemblies. These assemblies are loosely layered upon one another to form the overall composite. A strategy of layering as opposed to embedding assemblies or subsystems into each other allows easy access in order to update and modify

these subsystems in response to changing contextual conditions and practices. For example, wiring associated with the data and communication systems is kept separate and isolated from the structural frame of a building, allowing for reconfiguration of this system in response to changes in technology or work practices without affecting the overall structure of the building. This approach acknowledges that requirements and demands placed on various subsystems change over time in response to evolving and changing conditions. Subsequently, this approach enables the natural evolution of the overall system or product by providing means for the easy reconfiguration and update of individual subsystems without jeopardizing the overall structure in the process. This specific example points to the fact the conditions change over time, and in order for designs to endure, they must take this continuous change into consideration.

Moreover, designing for smooth ongoing adaptation is only part of the challenge presented by dynamic artifacts. Implicit in the description of the prevalent bounded design processes is the assumption that when the design is completed, design activity stops. However, dynamic artifacts existing in a complex and ever-changing environment raise the possibility that design activity remains important throughout the lifetime of the artifact, system, or organization. Therefore, adaptable designs can be useful only if they are also coupled with ongoing design processes. The idea of design as an ongoing ubiquitous activity nests natively in positive design and participative methods, but transforming it into practice requires further study. For example, we need to examine what mechanisms and processes are required if the users of designed artifacts are to remain involved in design processes that never end. How are the principles of positive and participative design to be realized in processes that are integral to the adaptation of the artifact over time? It is only through careful consideration of structures and processes that we can begin to see and address the issues that arise when designing dynamic artifacts.

THE CRITICALITY OF VOCABULARY AND DEFINITION IN DESIGN PROCESSES

Building on the fundamentals of constructionism (e.g., Berger & Luckmann, 1966; Gergen, 1982), a vocabulary-in-use is a key determinant of one's cognitive activity and consequent action. Thus, different vocabularies are likely to yield different thinking, different insights, and different behavior patterns. In other words, vocabularies define action, and different vocabularies yield different outcome. Consequently, the criticality of vocabulary and definition in *shaping design processes* is another important theme related to the nature and process of design. The effect of the vocabularies-in-use can be applied to a number of areas within the design process. The language used in discussing and defining the challenge that is the focus and object of the design exercise is one area where the positive lens can make a difference. For example, how does one refer to the challenge (e.g., as a problem or as an opportunity), what methods are used in identifying the challenge (e.g., Gap Analysis or Appreciative Inquiry), and what terms are used in stating the design challenge (e.g., deficit-based or appreciative-based)? Building on the constructionist perspective, taking a positive route in these examples is likely to yield an outcome that is based on opportunity-seeking outlook, the best available capabilities, and a desirable future in mind.

In a discussion of the challenges associated with designing large enterprise systems for public agencies, Brooks (2005) explores the role of framing in a set of seemingly intractable organizational challenges and concludes that the positive approach to organizational design is particularly valuable in these cases. Moreover, Brooks (2005) suggests that redefining the design goals in positive terms (e.g., "crafting systems that magnify strengths") as opposed to deficit terms (e.g., "addressing the problems") has a favorable impact on both the individuals involved in the process and the design product.

Semantics aside, also critical in shaping the design outcome are the kind of questions asked and the matters that become a subject of inquiry and discussion. In this instance, again, the positive lens can have a desirable effect on the process and product of design. For example, who are the intended users and what is their background? What users' biases and interests must the design accommodate? A more important and intriguing set of questions relates to the designers and developers themselves. For example, what is the role of designers and how do their roles differ from that of users? How does the role of the designer affect the user ability to achieve their

goals? Does it matter if designers are also users or if some users are developers? What is the relationship and interplay between the roles of designer and user, and how does this influence the outcome of the design? These questions remind us that the roles of designers and developers are themselves designed; that designers and developers are not impartial agents that arrive at a design solution through objective means, but they can have interests of their own and seek to achieve particular ends.

The inherent subjectivity of the design process raises questions as to whom the design process benefits and privileges, and how that affects the resulting artifacts. If the conditions surrounding a design project are dynamic and subject to negotiation and change, the partiality of the designers can influence this setting to result in an outcome for their own gain. This kind of interaction was exemplified in a case described by Leonardi (2005), which considered the interplay of system, roles, goals, and design processes in the social construction of design, designers, and the technology created to support them in an industrial design context. The case illustrates how this fluidity places all aspects of the design project at stake without any objective moorings to ensure a productive outcome. Out of this falls the definition or criterion of success and who gains from this success: the users, the designers, the stakeholders or others. Whether they are explicit or implicit, the underlying working definitions form an overarching centerpiece that plays a critical role in the process of design and its outcomes.

PERSONAL DISPOSITION: 'WHAT I DON'T LIKE TO DO OR DON'T KNOW HOW TO DO'

Most positive design processes, methods, and approaches set the stage for subsequent design activities. Consequently, discussions of positive design are often abstractions that serve to prefigure the setting where design takes place. Yet, by focusing on these abstractions we run the risk of over-generalization and forgetting that eventually they shape the way that *particular individuals* approach the challenge of creating innovative systems, artifacts, or organizational structures. This raises questions about how the personal traits and dispositions of the players influence and affect the process of design and its outcome.

Design methodologies often emphasize a structured process and overlook or downplay the role that the skills, abilities, and dispositions of individuals play in the success of a particular project. Without an explicit positive approach that focuses on things that work well instead of things that malfunction, even human-oriented design approaches may run into difficulties. For example, participative design focuses on bringing the stakeholders together to jointly engage in idea sharing, identification of a common ground, and reaching consensus. While this is a laudable goal, it is one that is rarely achieved beyond a superficial level due to the pre-existing conflicts of interest that pervades in any diverse group. Positive design approaches are designed specifically to build deep understanding and a social bond that makes the pre-existing conflicts irrelevant. Understanding successful positive design processes involves, at least in part, understanding the willingness of individuals to take certain roles and the basis of their ability to achieve desirable design outcomes.

It also important to understand what happens when individual dispositions come in conflict with the expectations of the positive design process. As part of his discussion of positive design, Butler (2005) considers psychological studies that suggest that the need for cognitive closure is, at least in part, a personal trait (Kruglanski and Webster, 1996; Webster and Kruglanski, 1994). If the need for cognitive closure is a personal disposition, how does this trait affect the design process and project? Should we account for this trait when selecting a designer? Design, at least in part, must include divergent cognitive patterns and behaviors. Furthermore, we argued earlier that the design process is open-ended, involves continuous assessment of possibilities, and benefits from ongoing consideration of a wide range of different variables. This characterization of the design process runs counter to one's desire to reach closure of outstanding issues. How does a person with a high need for cognitive closure operate within this type of environment? If this type of process runs counter to an individual's personal grain, how does this person engage effectively in the process and what influence does he or she have on the outcomes? Is this

person a detriment to the process? Does the inclusion of people with this personality trait within the design project lead to a negative impact on the resultant product?

These questions are significant because they raise the possibility that individual differences may be important factors that influence the design process and its outcomes. On a more fundamental level, questions about the role of particular traits of individuals in design activities must be examined because of the fundamental challenge that such questions pose to the egalitarian premises underlying the participative and positive design approaches.

THE UNDERPINNINGS OF ACHIEVABLE DESIGN: THE ART OF MAKING

From both practical and theoretical standpoints, the term *design* is often operationalized as a certain design methodology or a design strategy that is involved in the design process. Whether it is in reference to organizational structures, buildings, or information artifacts, methodologies of design activities rarely include a discussion of the implementation or the making of the subject of design itself. The current discourse tends to separate and isolate the act of design from the act of making. Consequently, designers and design scholars rarely examine the impact that the design activities per se have on the processes involved in the making of the artifact. This myopic view neglects to recognize the reciprocal relationship between these two activities. The particulars of the design influence the means of the making, and in turn, the making should impact and alter the nature of the design. Whereas a particular design exists as highly abstract set of conceptual propositions relative to given circumstances, the act of making constitutes the initial engagement of these propositions with reality, and a test to the legitimacy of its underpinnings. Therefore, a design is complete only if it includes a consideration of the means and consequences of its realization.

The divide between designing and making has ancient routes. Plato (cir. 360 BC) touches on this issue in *Timaeus* where he describes this condition as a threefold relationship "... that which becomes, that in which it becomes, and the model which it resembles," in respective terms, the product, the making, and the design. To describe this condition, Plato employs the metaphor of childbirth as follows: "We may indeed use the metaphor of birth and compare the receptacle to the Mother, the model to the Father and what they produce between them their offspring." Political correctness aside, Plato emphasizes the significance of the product over that of the design through the use of childbirth as a metaphor. Plato compares the product 'that which becomes' to a child which inherently outlives the original model, the Mother and Father. It is as if the design's only purpose is to serve as a set of instructions that will be transfigured over the course of its implementation. This process occurs in the implementation of any design through the act of making. When designers delude themselves into thinking that a design is the final meaningful result and the conclusion of the process, this leads in effect to a downfall of the design product itself.

Adopting positive approaches to design can help overcoming the culturally imposed gap between designing and making. For example, applying Appreciative Inquiry to organizational design implies an a priori holistic view that includes both designing and making, and treats them as a natural extension of one another.

Discussing the themes of completion, definition, disposition and making from a positive lens perspective contributes to our understanding of the nature and process of design. Further consideration of these themes and their repercussions for the design process and subsequent implementation is likely to enhance the overall design product and its related manifestations.

IV. COLLABORATION ACROSS BOUNDARIES AND INTER-ORGANIZATIONAL RELATIONSHIPS

Designing for positive change requires collaboration among a great number of diverse stakeholders. Positive change efforts such as those directed at sustainable development need to attract attention of diverse stakeholders by invoking their social consciousness. In this section, we

Design with a Positive Lens: An Affirmative Approach to Designing Information and Organizations by: M. Avital, K. Lyytinen, R. J. Boland, B. Butler, D. Dougherty, M. Fineout, W. Jansen, N. Levina, W. Rifkin and J. Venable

explore common challenges to the design of cross-boundary collaboration, discuss key principles that enable designing sustainable collaboration, and conclude with insights related to future research opportunities in that domain.

CHALLENGES FOR COLLABORATING ACROSS BOUNDARIES

The usual focus on efficiency and other mechanistic criteria to drive work practices may lead to short-lived initiatives of collaboration across boundaries. Collaborative efforts are often easier to start than to sustain, because in their local settings, agents tend to go back to “business as usual” that is rooted in local practices and situated experiences. A coordinated positive change effort that builds on buy-in of grassroots in each locale can help align the prevailing mindset and traditional ways of practicing across boundaries.

Another related challenge associated with collaboration in heterogeneous environments is the likely tension between local and global interests. As members of diverse communities come together to collaborate around a shared (global) issue, there are inevitable sacrifices that they have to make in order to reach a common ground that is necessary for the pursuit of the underlying shared objective. In this case, a coordinated positive change effort should respect the local agenda and local interests by promoting a culture of diversity and pluralism that hopefully includes and values collaboration across boundaries. An interesting illustration of this tension was offered in the study of the GEON project², which sought to ensure the delivery of a more integrated picture of earth processes to a broad range of geo-sciences disciplines by providing a cyber-infrastructure for supplying scientific data and resource sharing services. In GEON, only a minimal consensus on scientific models and language was sought to facilitate collaboration. However, with no explicit care for local peculiarities, specific disciplinary knowledge was easily lost in the drive for consensus (Ribes and Bowker, 2005).

An agreement on a single or uniform design outcome among stakeholders may be less than desirable in cross-boundary collaborations. Again, in the GEON project, a key challenge was how to preserve multiple views (i.e., models, languages, and objects) so as to address the complex problem at hand. According to Ribes and Bowker (2005), while the common ontology and standards could have facilitated further interoperability across boundaries, they would have also impeded local innovation. Moreover, if the collaborating parties continue to maintain their respective individual practices and identities, having one shared ontology among them becomes almost impossible due to the inevitable “drifting” (Ciborra and Hanseth, 2001) in each locale. Any agreement on a common set of terms and relations is likely to wear off by the ever-evolving local needs and situated ontologies.

Last, but not least, is the challenge associated with power imbalances among players in cross-boundary collaboration. There are plenty of examples of powerful players intentionally or inadvertently dominating collaborative efforts by influencing common standards and inhibiting local innovation and development. Aside from the infamous software industry example set by the Microsoft Corporation, one can observe similar phenomenon among such diverse settings as heterogeneous project teams (Levina, 2005), inter-organizational collaborations for sustainable development (Laszlo, 2003), and industry consortia (Markus et al., 2006). A coordinated positive change effort that aims for a sustainable collaboration across boundaries must account and compensate for the inherent power imbalances among the participating partners.

PRINCIPLES FOR BUILDING SUSTAINABLE POSITIVE CHANGE ACROSS BOUNDARIES

The following is a set of principles that can guide organizational designers in addressing the common challenges of collaborating across boundaries and provide an impetus for sustainable positive change. These principles were inspired by the notion of “construction principles”

² <http://www.geongrid.org>

borrowed from design science and referring to “any coherent set of imperative propositions, grounded in the state-of-the-art of organization science, for producing new organizational designs and forms and redeveloping existing ones” (Romme and Endenburg, 2006). We narrowed in on the following principles:

- **The leaders of cross-boundary design efforts need to understand and represent all collaborating parties.** There is no substitute for designers “going native.” For example, in the research project on Danish healthcare technologies, it was clear that unless designers truly understood the needs of both the patients and the providers, the technology that they developed ran a high risk of being shelved (Bansler et al., 2005).
- **Design rules need to be articulated and common benefits need to be understood by everybody.** Once the designers are able to understand the diverse interests of everyone, they need to ensure that the joint collaborative goals and their design rules (i.e., the specific rules for how to achieve these goals) have a buy-in among all involved parties. In the context of collaboration across boundaries, the design rules for new joint communities must become shared boundary objects (Romme and Endenburg, 2006). For example, in developing a national web-based system for insurance sales agents, the webmaster had to go “door-to-door” to convert skeptical agents into enthusiastic users by listening to their concerns and evangelizing the joint effort (Levina and Vaast, 2005).
- **A shared identity among participants must emerge.** While short-term cross-boundary exchanges without much common ground may succeed due to opportunistic “mutual gains from trade” sustainable cross-boundary efforts are based on a solid commitment of people identifying with the common endeavor and engaging in joint identity building. It is critical to overcome an “us vs. them” mindset and to facilitate a sense of “we” (Maguire et al., 2004; Levina and Vaast, 2005). Achieving a broad base synergy within the emerging, yet still diverse, community requires that the focus should be on a shared desirable future, which is meaningful on a broad basis. With positive design in mind, the focus could be a “noble cause,” that everybody involved can relate to and agree upon.
- **Common language, ontology, and artifacts are needed to sustain collaboration.** Shared identity emerges only when people are engaged in a joint discourse (Maguire et al., 2004) that allows for the translation and transformation of local practices to take place (Carlile, 2002). Sustainable joint efforts rely on the ability to make local adjustments. Shared language and shared artifacts facilitate buy-in around common design rules and investment in joint practices as demonstrated by such efforts as the GEON project (Ribes and Bowker, 2005), consortia building in the US mortgage industry (Markus et al., 2006), and Appreciative Inquiry-driven change effort at organizations or communities of practice (Avital, 2004).
- **The shared vision must be evangelized continuously to the community at large.** Once the joint initiative gets off the ground and a joint community of practice emerges around it, its members, like the members of any community, will acquire a social distinction and engage in building boundaries and restricting membership: consortia, interests groups, professional societies, and research initiatives are all selective institutions. Keeping such a community viable and sustainable requires its leaders to continuously seek support from external stakeholders and to make considerable effort in enrolling new members (Levina and Vaast, 2005).
- **Agility is crucial for sustainable collaboration across boundaries.** The notion of *tensility* (Robson et al., 2005) emphasizes that cross-boundary collaborations depend on sustaining multiple relationships in spite of the fact that the interests of each stakeholder keep changing over time. Sustaining such collaborative relationships requires constant adjustments and realignments. For example, SOL (Society for Organizational Learning) Sustainability Consortium sustains participation of its members by continuously sensing

the changing interests of its diverse set of stakeholders and adjusting its practices accordingly (Robson et al., 2005).

PROMISING RESEARCH OPPORTUNITIES FOR FOSTERING COLLABORATION ACROSS BOUNDARIES

One of the main issues in cross-boundary settings is that people often do not know who is who and what is what outside their immediate environment (Mortensen and Hinds, 2002). One attempt to help facilitate the learning of who's who across communities was the development of the OrgScope tool, which provides a map of organizational positions and individuals assigned to them (Stamps and Lipnack, 2005b). Unlike a standard organization chart that provides a static map of relationships, the OrgScope provides instant dynamic depictions of the organization that delineates the direct and indirect reporting relationships in multiple views and multiple levels of aggregations. The multiple visual perspectives and cross-sectional views provide an endless source of insights related to management of the value chains, organizational processes, reporting relationships, and similar issues that requires a systemic understanding and global view. A promising research area is the development of ontology-based applications that can map and allow multiple views of various relationships among nodes in organizational and inter-organizational networks. In addition to reporting relationships and locus of control, such viewers may map distribution of expertise, social ties, cultural orientations, performance measure, personal preferences, and the like. The development of ontology-based visual viewers and the consequences of their ubiquitous availability in organizations can help take cross-boundary collaboration to the next level.

Another fruitful research area concerns methods for creating a common ground among collaborators. Recently, it has been argued that shared ontologies such as classification systems are a thing of the past. Modern technology will enable situated bottom-up ontology building which, coupled with fast search and cross-referencing capabilities, will replace the need for shared ontologies (Shirky, 2005). While these new capabilities are enabling a greater degree of local control and greater visibility for small-group efforts, they provide a limited support for sustainable cross-boundary collaboration efforts. In order for collaboration to occur, a new joint language is needed to enable the emergence of common, synergistic solutions. While researchers, especially in Artificial Intelligence and Database Integration areas, have focused on building such languages for several decades, the prevailing social and representational challenges are no less prominent today.

There are four loosely-related ideas that could facilitate further research on collaboration across boundaries: (1) Research efforts can focus on the emergence of generative "seed concepts" within each local ontology in an attempt to look for ways to germinate a shared ontology across boundaries. (2) Because visual representations will remain a critical tool for understanding local concepts and developing shared ontologies, designing more elegant and useful visual representation continues to be an important research topic. (3) In future attempts to build a shared ontology, the notion of "Minimal Critical Specification" borrowed from the design literature can be a useful metaphor for enabling a balance between chaos and overly restrictive order. (4) We know that discourse and action are tightly connected. By design, the positive lens focuses on life-giving sources, on winning configurations, and on successful relationships that work well. Adopting a positive lens implies a discourse with less regard for rooted conflicts and prevailing problems. Further research is required to understand the link between a positive discourse and the outcome of cross-boundary collaborations.

In summary, although collaboration across boundaries may be challenging, the discussion above offers some general design principles that emphasize how a positive lens can be utilized to enhance and sustain such collaboration.

V. ORGANIZATIONAL THEORY AND ORGANIZATIONAL DEVELOPMENT PERSPECTIVES

Fundamental changes in organizing are occurring now, in part enabled by information technologies that both facilitate and invoke new modes of relating among people. Positive organization design helps to provide language, theory, and ideas for understanding new kinds of organizations that are being born. Here, “positive” refers to organizations that give members life and joy, preserve their dignity, elevate their energy, and provide them with a sense of being effective and purposeful.

CORE ELEMENTS OF A POSITIVE ORGANIZATION

We outline three core elements of designing positive organizations and develop principles for designing such organizations. Our elements include: incorporating safe and secure spaces, silence and reflection, and lastly, tensions and paradox.

- **Safe Spaces.** Safe and secure spaces foster self-determination, trusting relations, and enhanced appreciation. A safe space helps people to see the possibilities and to keep their energy focused on ideas rather than personalities. Such spaces in organizations must address two challenges. One is that in a large organization with multiple sites, co-workers are often strangers. We need to acknowledge ourselves as strangers, take ownership for our own expressions and perceptions, emphasize tolerance with the assumption that any offense is not intentional, and then find a common ground to create conversations. A second challenge is that it is impossible to have a safe space at every moment, so people must be skilled at operating collaboratively at times without a sense of security. The trick is to figure out what set of safety issues is going on at that moment and leverage work with them.
- **Silence and Reflection.** Silence and reflection open up the possibilities for improvisation and contribution and enable people to reconnect. Silence and reflection also provide the chance to make sense of new information, reflect on what we like about what we just did, evaluate, and make it better. Taking advantage of silence, or even being silent and reflective appears to be passive, and is often taken for granted. However, in most organizational environments, it requires an explicit effort and skill to reflect calmly on a potent situation in progress, to see the intricacies of its setting, to bring all the pieces into harmony, and to develop a constructive and forward-looking response to that situation.
- **Embracing Tensions.** Tensions and paradox are inherent in organizing and need to be acknowledged and balanced continuously (not just in the middle) rather than denied (Pelz and Andrews, 1966; Jelinek and Schoonhoven, 1990). Creative interplay can be life-giving to knowledge-based work groups, but how to have good debates in which people are speaking positively is delicate. Acknowledging tensions enables people to blow off steam and to become emotionally intelligent about their decisions and conduct. Embracing tensions allows people to agree to disagree, and subsequently to work out an acceptable compromise.

DESIGNING A POSITIVE ORGANIZATION

Before the tensions to be accommodated can be articulated, it is necessary to define what we do when we “organize.” Textbooks settle on four basic activities of organizing: (1) defining work, (2) arranging work and workers into sensible units, (3) integrating units, and (4) controlling the organization (see Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Mintzberg, 1979 for related ideas on what we do when we “organize”). Each activity is matched up with a relevant tension that must be embraced in order to do that activity effectively. By encompassing the four tensions described below in an affirmative fashion, an organization can embrace the three core elements of a positive organization design to enable safe and secure spaces, silence and reflection, and constructive breakdown and re-connection.

Defining Work to Embrace Freedom vs. Responsibility

The definition of *work* is an essential design element because it articulates the roles and responsibilities of people in the workplace or organization. The tension between freedom and responsibility relates directly to how work is defined. People should be free to do what is necessary to get the job done, yet also remain responsible about collective resources and how their work fits with that of others. The traditional definition of work is based on the notion of one's "specialization," with defined responsibilities and limited freedom. This definition not only ignores this tension, but also fails to fit the realities of work in the 21st century. Work is increasingly complicated, confusing, and requires multiple perspectives. People must continually re-define their roles or particular tasks at hand by negotiating with others, relying on peers to achieve what they personally are held accountable for, and doing their own work in sync with others' work. Defining work in terms of professional practice embraces inherent tensions between freedom and responsibility, while also providing space for security and reflection (Schon, 1983; lansiti, 1993 on "T" shaped skills; Tsoukas, 1996; Orlikowski, 2002).

Differentiating Work to Embrace Old vs. New

Most organizations have to deal with the idiosyncrasies of legacy capabilities and resources (such as customers, factories; know-how) along with the idiosyncrasies of new or emerging capabilities and resources, and leveraging one to support the other enables activities to flow (Galbraith, 1995). Balancing old and new requires that everyday work is grouped or differentiated in ways that enables people to embrace the tension in a sensible, doable manner. Differentiation is essential because it turns a complex workflow into a set of manageable finite tasks. The traditional approach to work differentiation is by function, business, market, or location, and it is left up to contingencies to select the primary boundary. However, none of these embraces the tension between old and new.

If the primary boundary for work unfolds over time, then the tension between old and new should be addressed as part of everyday work. Examples of such instances are often found in managing products and projects; developing dynamic capabilities to anticipate and respond to change and or opportunities; and cultivating product families or product lines. Within each domain of activity, practitioners must juxtapose new issues with established ones and find a way to leverage one kind to support the other (e.g., in the product development community, people juxtapose the impact of legacy and new technologies on the production of a new device, its functionality, logistics of its maintenance, and fit to customer needs).

Integrating Work to Embrace Outside vs. Inside

In today's workplace, employees must reach beyond their own specialties to absorb insights from others and to make sense to others. All products must have integrity with the firm and the market. Moreover, all functions and businesses must be networked with both internal and external systems. The theme, balancing inside with outside, is an essential design element that is associated with integration. The traditional approach to integration via the hierarchical command-and-control structure cannot balance adequately the tension between outside-related and inside-related requirements. In contrast, integration through enabling ongoing strategic sense-making can create balance (Weick, 1995; Dougherty et al, 2000). Ongoing strategic dialogues across domains of practice can become a source of new insight and facilitate a desirable balance between global and local trajectories (Tushman and O'Reilly, 1997; Leonard, 1998).

Controlling Work by Embracing Emergence vs. Determination

Innovations often emerge through a sequence of trial and error refinements that lead to a breakthrough beyond expectations. Yet, over time, organizational systems and marketplace mechanisms must be leveraged and controlled deliberately (see Amabile et al, 1996; Vickers, 1965, on creativity and judgment). Clearly, the organization's activities must be controlled to balance emergence and determination. However, conventional control by standards and supervision alone ignores emergence and sometimes even hampers it. A healthy balance between emergence and determination can be gained via control through three simple generative

rules that enable everyday action, as follows: (1) continually articulate what you know so that others understand; (2) always explore options; and (3) take responsibility for the whole not just your part (Westley, 1990; Dougherty, Barnard, and Dunne, 2005). These rules relate directly to allocating and controlling valued organizational resources that energize work and innovation.

IMPLICATIONS AND ASPIRATIONS

These principles of organization design embody the essence of the positive lens, not as an add-on or an ideology, but as something that arises from everyday work. These design principles couple the real and necessary constraints of complex work with emergent social action. In fact, neither can exist without the other. Organizing based on these four tensions reinforces the collaborative skills necessary for creating safe and secure spaces by making it easy for people to work together, even when a sense of security may be absent at times. It also reinforces their reflective skills and ability to discuss the situation with others through mutual respect and appreciation of the others' work issues. Finally, these new principles can provide insight into the reframing of managerial work to be about taking a facilitator role in the ongoing dialogues among the domains of practice, actively articulating means and ends, and reinforcing the rules of control by enabling knowledge development and sharing and exploration. With these aspirations in mind, we recognize that these principles are high-level abstractions that would be enacted in particular ways depending on the industry, technology, and history of organizations. Future research needs to develop specific practices and processes through which these principles of positive organizing can be enacted.

VI. DESIGN AS A DISCIPLINE AND DESIGNING AS A CORE ACTIVITY

DESIGNING INFORMATION AND ORGANIZATION SPACE

Positive design of information and organization creates spaces where people can come together, have dialogues, and engage in storytelling so they can make sense of the world, resolve conflicts, and form agreements. More and more we see that this kind of organizing communication is moving online; and as it does, the design challenge of creating spaces for positive interaction grows ever stronger. Online networks share key characteristics with physical spaces, such as being demarcated for particular purposes, being valued for the sense of place that can emerge within them, and having rules that govern the human interaction within them. The questions we ask are: How should we approach the design of this on-line space with a positive lens? How does the design and architecture of this space constrain, support, or facilitate the ideals of appreciative inquiry, positive psychology and emancipatory communication processes?

We want to understand how to maximize the benefit that can be derived from interweaving the processes of appreciative inquiry and the design of information technologies. Because information technologies can transcend certain limitations of physical space, they can provide a freeing and enabling medium for appreciative design processes. For example, in comparison to the prevailing practices, the number of participants in an appreciative process can be much larger, the memory of its dialogues and insights can be maintained more reliably, and the interplay of logic and emotion that inform positive thinking can become more visible and valued. Information technology can be designed to maintain summaries of different perspectives that are developed in a design process and can also highlight patterns in the flow of interaction that otherwise might not be recognized by participants. These types of functional capabilities would blur the distinction between anonymous and non-anonymous communication, and open new possibilities for productive interaction.

Designing an online space for positive organizing presents an opportunity to break from our existing practices of communicative interaction. Consider the emergence of democracy in cyberspace, and the way that informal talk among people can generate political power and become something tangible, as seen in the silent revolution in the Ukraine or the 2006 student protests in France. The voice of the people is an undeniable source of power in politics, but how

can technology convert the latent “voice of the people” into something more tangible as part of governing? If we view this as an information design challenge, we may be able to develop a technology-based architecture to support large-scale positive organizing. If we consider the growing use and the subsequent influence of blogs, open source software, and Wikipedia, we see that people are already positively self-organizing to share ideas and opinions and are creating tangible outputs that affect the world. A large-scale positive process in cyberspace could be a powerful vehicle of democratizing society.

AESTHETICS OF PERCEPTION

This image of an interactive environment for positively shaping organizations and society through communicative practices emphasizes the active role of the individual as a perceiver, including an appreciation of the individual’s aesthetic of perception. Their aesthetic of perception is the sense-making orientation that they bring to bear on their engagement with the world. An aesthetic of perception is thus a way of knowing, and considering alternative aesthetic logics can open an exploration of new forms of collaboration. Frank Barrett (2005) gave us four aesthetics that can serve this purpose. They include an aesthetic of surrender, an aesthetic of wonderment, an aesthetic of appreciation, and an aesthetic of forgiveness (think of the power of the truth commission in South Africa). They give us four ways in which aesthetics can engage in design with a positive lens.

By raising the issue of aesthetics, we are emphasizing how our engagement with the world is actively driven by our modes of perception. Unfortunately, it may be the case that any aesthetic will eventually become dominated by the use of numbers, categories, and quantitative arguments. Narratives and storytelling are heard differently than quantitative analysis, and we ask if an aesthetic can help keep narratives as valued as are numbers. Management as a frame of perception is certainly an aesthetic, but not necessarily an attractive one. Design itself implies an aesthetic, but the word design may soon become so over inflated that in a few years we may become tired of using it. So, does aesthetics really offer an avenue of hope, or will it merely provide another realization of the Foucauldian trap (see Foucault, 1977) we sometimes seem to be in? That is, the trap in which a meta-awareness of our aesthetic practices, and an experimentation with new, more hopeful aesthetic practices does not free us from their limitations, but instead provides additional ways for quantification to shape our perceptions.

Dewey (1981) can help us here, by reminding us of the central role of emotion as a unifying element of our experience. Thinking, doing, and feeling are all intertwined. We do not simply perceive the world, but instead, we engage in interaction within it in order to reshape it as we reshape ourselves through inquiry and conversation. The act of surrender, for instance, is not a passive acceptance of a status quo, but is instead a surrendering to a design process that is freeing, once we accept and immerse ourselves in it. An unanswered question is how design plays a role in creating the kind of dialogue needed to achieve any or all of these aesthetics or to guide them once stimulated.

MANAGING AS DESIGNING: AN EXAMPLE FROM INTERACTION DESIGN

One theme underlying the conference on *Designing Information and Organizations with a Positive Lens* (see footnote 1) comes from a parallel project on *Managing as Designing* (Boland and Collopy, 2004). Here, we are emphasizing positive approaches such as appreciative inquiry in this consideration of managing as designing, especially as they relate to information in organizations. In both projects, we seek to characterize design as a key discipline and a core activity in creating a positive, humanly satisfying information environment. The discipline of design brings together knowledge from many different fields, and design with a positive lens is bringing those multiple bases of knowledge together in creating more humane, uplifting, and inspiring organizations through information practices.

As an example project, let us consider the information design project that the Carnegie Mellon School of Design is conducting with the United States Postal Service (USPS). It involves the

redesign of the core legal document of the postal service, a huge organization with more vehicles than the US military and with 800,000 workers. The postal service predates the United States Constitution and is intended as a truly universal service in which even the homeless can receive mail. An early realization during the Carnegie Mellon School of Design project was that the USPS had ambiguous, multiple identities. There is confusion among employees, customers, and managers about what the identity of the postal service is or should be. The core legal document they are charged with revising has become so confusing that hardly anyone understands it.

The Carnegie Mellon approach was to modularize the overall process of mailing a package into a set of meaningful pathways of user experience. Their assumption is that the system is too large, complex, and interconnected for anyone to understand it as a whole. So, developing an overview of the USPS would not be a useful way to begin redesigning it. Instead, they have approached the project as the design of an information architecture for the paths of interactions that will be experienced by customers and employees as a package is mailed. Their first phase developed a 24-page booklet with rich images depicting actors' movements through the Postal Service space as they mailed a package. They were designing for positive impact by emphasizing the pathways and experiences of individuals, as opposed to an overall logic for the system. In this way, they are approaching information as a medium for interaction, and designing for a positive and enabling experience from the viewpoint of both customers and the workers as they navigate paths within the USPS. This is very different from a traditional IT design process which would first work on rationalizing the package mailing system, and then try to explain that new process to employees and customers.

The Carnegie Mellon approach goes beyond familiar calls for user participation and adopts an aesthetic of seeing the mailing of a package through the eyes of an individual person (customer or employee) in an interactive USPS space. They are creating a strong form of a user centric view, putting the individual in focus, and following how they experience paths through the system by attending to what they need in order to navigate them in a productive and fulfilling way.

In addition to helping the customer navigate paths through the USPS more successfully, an emphasis on paths of experience opens new insights and realizations to the managers and workers in the postal service. In the same fashion, both Frank Gehry³ and IDEO⁴ owe their reputation as innovative companies (in the field of architectural design and the field of product and organizational design, respectively) to their intense attention to the paths of experience encountered using their design products. Both emphasize that previously unseen opportunities and new possibilities have surfaced from their ability to understand better and reframe the interaction between the underlying design products and people. By designing information as medium, we are also designing interaction. In this sense, information is the medium and interaction is the form of designing information and organizations with a positive lens.

THE ROLE OF CRITICISM, CHAOS AND MOVEMENT IN DESIGN

A problem that is lurking behind all this positive talk and aspiration is the need for constructive criticism to move projects forward, because criticism is often a springboard for a needed reframing of our understandings. Too much emphasis on positive affirmation may inhibit the productive role of criticism. On that front, even humor often has a critical edge to it and can help break familiar mindsets. Drawing on Jurgen Faust's (2005) theory of design in sculpture, we propose that before a new shape can emerge in a design process, there must be movement, and before movement, there must be a sense of chaos that allows movement to happen. Chaos leads to movement and movement leads to new shapes, but without criticism there can be no chaos,

³ http://en.wikipedia.org/wiki/Frank_Gehry

⁴ <http://www.ideo.com/>

hence no movement, and hence no new shapes. The analogy to design is organizational context is straightforward.

From an institutional standpoint, ongoing constructive criticism is often generated through a certain branded structured process. For example, many organizations are striving for ways to make self-evaluations and have tried ABC, TQM, Earned Value Analysis, Balanced Scorecard and more. In spite of the enchanting theories, the prescribed processes often fail to deliver what they promise. With its affirmative twist and vast malleability, the positive lens provides a sense of hope in this search for getting better at designing and evaluating large-scale systems.

FROM THE MOUNTAINTOP TO SITUATED PRACTICE

There is an important lesson to be learned from the classic story of the transfiguration in the Gospel of Luke. Recall that the story involves a movement up to the mountaintop, but also a movement down to the world. Successful design requires that kind of movement back and forth between the view-from-the-mountaintop to the existential reality of the situation at the mountain's base. The art of management can be thought of as a movement from an organizational mountaintop to the world of action. In that sense, an enduring problem for the manager is effectively translating an image gained on the mountaintop into situated practice in the world. Management as a discipline has lost touch with that experience and often asserts that it is impossible to capture, translate and energize a mountaintop image of the future. Managers too quickly become governed by the convenient excuse of impossibility and do not even try to pursue a dream. Nonetheless, great organizations have always and still continue to pursue a dream. Managers as designers, like artists and novelists, often strive for an ideal state, even though it may not be reached. The essence of design is the movement toward an ideal aim, not reaching it. If we are pursuing that dream through a positive lens, there will be a progress toward a more humanly satisfying world, and that, in the end, is all we can ask.

DIALECTIC BETWEEN DEDICATION AND DETACHMENT

The words "dedication" and "detachment" capture two key ideas that relate to design of organizations and information with a positive lens. Dedication and detachment characterize the relationships between designers and what they might be designing as well as the relationships among the actors who engage in design per se. The term dedication indicates the attachment of designers to the design object, its role in the world, and the people who intend to use it. In contrast, the term detachment suggests that although a design may not be entirely completed, at one point the designers announce that it is successfully done and head home.

The contradictory nature of the two terms and their coexistence in almost any design undertaking poses a particular challenge at this stage for theorizing and practicing positive design. How this sense of attachment fruitfully coexists with the precept of detachment might be captured in the lyric, "if you love me, let me go." In that sense, it is up to us to outline what is love and what must go in order to take advantage of resonances between design processes and appreciative inquiry methods. For now, we suggest that emergent theory of positive design must unfold a dialectic between dedication and detachment.

NEED FOR RICH DESIGN ARTIFACTS AND LITERARY ANALYSIS

Although we all agree that it is dangerous to fall in love with a design and to strive to go beyond whatever we have achieved, we also agree that there is something about rich design artifacts as contexts that keeps bringing us back with new hope. Take for example the Internet as a design artifact and context. It may create significant disruptions in personal and social life, but its richness and scope as an artifact keeps inviting people back to seek a new possibility. It also keeps inviting new people to join the discussion. In addition to designing as a process, we also need to think about the material characteristics of the artifact that can engender such a strong desire to return and continue an engagement with it. It is, therefore, always a question of attending both to designing and to designs. The positive lens, and particularly appreciative

inquiry, emphasizes designing as a process, and leaves it up to you to offer that tangible thing, an artifact and context, which can invite us back.

Consider Native American Indian cultures and their approach to artifacts. Artifacts keep drawing them back and receiving special concern because they are living things to them. This is a dramatic reminder that design is not complete until its community of users makes it meaningful. A principle way in which meaning of an artifact emerges and solidifies is through the storytelling of users (Dourish, 2004). Perhaps we should engage in further studies of narratives and related literary works. This would include attending to the text of the actors' narrative, as well as self-reflective designers who try to produce an account of working with intended users. For that type of literary and narrative analysis, magical realism is a possible genre model for what goes on in systems projects and for trying to describe the users' appropriation of a new system. If we want to take storytelling of users seriously, we need to engage in literary work, and include literary genre analysis as a complement to our design and implementation efforts.

REFRAMING DESIGN

As we struggle with the practical issues of positive design in IS, we keep running into a roadblock with our familiar categories as to who designs systems. We see that increasingly, the IT group is "getting no respect" in a Rodney Dangerfield sort of way, and non-IT people are becoming more responsible for technology and organization design. One of the most powerful capacities of the positive lens is its ability to drive reframing of the way we perceive situations and possibilities (Thatchenkery and Metzker, 2006). We should use the positive lens to reframe the way we conceptualize and operationalize systems design, at both a personal level and an organizational level. We may have to rethink who is the designer, as well as what is design. If not, we may find ourselves recreating familiar problems with new techniques, rather than creating the new worlds for which we hope.

VII. COMMON THREADS

With this essay we have laid out six broad-scale themes that both build on and extend the discussions conducted in *Designing Information and Organizations with a Positive Lens*. We have been examining the implications of positive design in the context of artifact design and changes in work practices in an organizational unit, cross-boundaries and inter-organizational relationships, contributions to organization science and design science, and possibilities of positive theories and practices. The themes have served as a mean to organize our thinking about the implications of positive design and also as a vehicle to engage other scholars in pursuing research in this area.

We have also identified four emerging tensions in the overall discourse that provide ample research opportunities. The most dominant issue is the tension between **deficit thinking** that guides system designers to eliminate the weakest link, and **appreciative thinking** that guides designers to strengthen and build on the strongest link. The paradigmatic and ethical tension between the two runs deep and raises questions about core design directives and methodologies, and in particular how to balance them in different design contexts.

Another dominant theme is the tension between **uniformity** and **pluralism**. Key issues that emerge from this discourse touch upon the nature of the design process and the merits of formal and efficiency-seeking design processes, as opposed to organic, adaptive, and flexible design processes. The object of design is another issue and raises questions on the merits of design for uniformity and conformism, as opposed to designs for pluralism and diversity. In the same vein, the sentiments and reactions in reference to expert-driven design versus participative design raise similar questions.

Finally, two recurring tensions involve balancing acts between **close-ended design** versus **open-ended design** and between **locally-oriented design** versus **globally-oriented design**. Whereas one theme raises questions about the convergent-divergent nature of design processes and outcomes, the other directs us to questions about design for customization, mass-scale,

niche markets, and the awakening of the bottom of the pyramid. Inherent in the discourses of design, the dynamics driven by these tensions are highlighted and magnified further by the positive lens. In this regard, it provides a challenging opportunity for the academic community to reconsider the underlying assumptions about design, its epistemologies, and its ethical grounds. We believe that debates on the underlying assumptions are pivotal for shaping design practices associated with systems and organizations.

VIII. EPILOGUE

By offering a place for a new kind of dialogue at the crossroads of technology, organizations and society, the first working conference on *Designing Information and Organizations with a Positive Lens* promoted the exchange of ideas across multiple disciplines as well as across industry and academia. In spite of the vast heterogeneity of the group, the diverse interests, and agendas of the participants, we discovered the capacity of the positive lens to identifying common-grounds and its potential to evoke provocative ideas, generative thinking, and compelling initiatives. We discovered that we all subscribe to the notion that scholarly efforts to improve design ought to be multidisciplinary and socially responsible. This report is a milestone in a new cross-disciplinary discourse between scholars and designers that together can shape an agenda that potentially becomes a catalyst for positive organizational and technological design.

ACKNOWLEDGEMENT

This paper stems from the workgroup discussions in *Designing Information and Organizations with a Positive Lens* (see footnote 1). The authors thank the participants who shared their thoughts and inspired this paper. In particular we appreciate the contributions of the following individuals: Nancy Adler (McGill U.), Zaheeruddin Asif (Temple U.), Frank Barrett (Naval Postgraduate School), Jon W. Beard (Purdue U.), Suresh Bhavnani (U. of Michigan), Geoffrey Bowker (Santa Clara U.), JoAnn Brooks (The MITRE Corporation), Richard Buchanan (Carnegie Mellon U.), John Carroll (Pen State U.), Dong-Sung Cho (Seoul National U.), Fred Collopy (Case Western Reserve U.), David Cooperrider (Case Western Reserve U.), Roger Dunbar (New York U), Jurgen Faust (CEDIM), Raghu Garud (Pen State U.), Donald W. de Guerre (Concordia U), Finn Kensing (The IT University of Copenhagen), Heinz Klein (SUNY Binghamton), Chris Laszlo (Sustainable Value Partners), Paul M. Leonardi (Stanford U), Jessica Lipnack (NetAge, Inc.), M. Lynne Markus (Bentley College), Steve Meador (U.S. Department of Energy), Bernard Mohr (Innovation Partners International), Eric Neilsen (Case Western Reserve U.), Tom Nickel (U. of the West), Rombout van den Nieuwenhof (Zeno Consulting), Malcolm Odell (Appreciative Inquiry Consulting), Brian Pentland (Michigan State U.), Neil C. Ramiller (Portland State U.), Julie Rennecker (Case Western Reserve U.), Daniel Robey (Georgia State U.), Linda Robson (Case Western Reserve U.), Judy Rodgers (Case Western Reserve U.), George Romme (Eindhoven University of Technology), Carol Saunders (U. of Central Florida), Ken Shepard (Canadian Centre for Leadership and Strategy), Tony Silbert (Innovation Partners International), Jeffrey Stamps (NetAge, Inc.), Erik Stolterman (Indiana U.), Susan-Leigh Star (Santa Clara U.), Dan Stone (U. of Kentucky), Dov Te'eni (Tel Aviv U.), Tojo Thatchenkery (George Mason U.), Jijie Wang (Georgia State U.), Diana Whitney (Corporation for Positive Change), Eleanor Wynn (Intel Corporation), Youngjin Yoo (Temple U.), Danielle Zandee (Case Western Reserve U.) and Ping Zhang (Syracuse U.).

REFERENCES

EDITOR'S NOTE: The following reference list contains the address of World Wide Web pages. Readers, who have the ability to access the Web directly from their computer or are reading the paper on the Web, can gain direct access to these references. Readers are warned, however, that

1. these links existed as of the date of publication but are not guaranteed to be working thereafter.
 2. the contents of Web pages may change over time. Where version information is provided in the References, different versions may not contain the information or the conclusions referenced.
 3. the authors of the Web pages, not CAIS, are responsible for the accuracy of their content.
 4. the author of this article, not CAIS, is responsible for the accuracy of the URL and version information.
- Amabile, T., R. Cont, H. Coon., J. Lazenby and M. Herron (1996) Assessing the Work Environment for Creativity, *Academy of Management Journal*, (39), pp. 1154-1184.
- Ashby, W.R. (1958) *An Introduction to Cybernetics*, John Wiley
- Avital, M. (2005) "Accelerated Systems Analysis and Design with Appreciative Inquiry - An Action Learning Approach," *Communications of the Association for Information Systems*, 15(17), pp. 289-314.
- Avital, M. (2004) "Bolstering Knowledge Management Systems with Appreciative Inquiry," *Proceedings of the 12th European Conference on Information Systems*.
- Avital, M. and Te'eni, D. (2006) "From Generative Fit to Generative Capacity: Exploring an Emerging Dimension of Information Systems Fit and Task Performance," *Proceedings of the 14th European Conference on Information Systems (ECIS)*.
- Bansler, J., E. Havn, and F. Kensing (2005) "IT - Support for Shared Care," *Proceedings of the 3rd Scandinavian Conference on Health Informatics*, Ålborg, Denmark.
- Barrett, F.J. (2005) "Designing for collective improvisation and dynamic Synchronicity: "Say yes to the mess" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Beard, J. (2005) "Can IT Systems Learn?" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Berger, P.T. and Luckmann, T. (1966) *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, Doubleday and Company
- Boland, R.J and F. Collopy (2004) *Managing as Designing*, Stanford: Stanford University Press.
- Brand, S. (1994) *How Buildings Learn: What Happens after Their Built*, Penguin.
- Brooks, J. (2005) "Designing Enterprise Systems for Large Government Agencies: The Need for a Positive Lens" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Burns, T. and G. M. Stalker (1994: originally 1961) *The Management of Innovation*, Cambridge: Oxford University Press.
- Design with a Positive Lens: An Affirmative Approach to Designing Information and Organizations by: M. Avital, K. Lyytinen, R. J. Boland, B. Butler, D. Dougherty, M. Fineout, W. Jansen, N. Levina, W. Rifkin and J. Venable

- Butler, B. (2005) "Business Continuity Management: A Positive Perspective on the Design of Resilient Organizations" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Carlile, P.R. (2002) "A Pragmatic View of Knowledge and Boundaries: Boundary Objects in New Product Development," *Organization Science* 13(4), pp 442-455.
- Ciborra, C.U. and O. Hanseth (2001) "Introduction: From Control to Drift" in C.U. Ciborra et als (eds.) *From Control to Drift: The Dynamics of Corporate Information Infrastructures*. Oxford: Oxford University Press.
- Cooperrider, D.L and M. Avital (2005) "Appreciative Inquiry and the Changing Field of Change" in Cooperrider, D.L., Sorensen, P.F., Yaeger, T.F., and Whitney D. (Eds.) *Appreciative Inquiry: Foundations in Positive Organizational Development*, Champaign, Illinois: Stipes Publishing.
- Cooperrider, D.L. and M. Avital (2004) "Advances in Appreciative Inquiry—Constructive Discourse and Human Organization," In D. Cooperrider and M. Avital (eds.), *Constructive Discourse and Human Organization*, Advances in Appreciative Inquiry Series, Volume 1, Oxford: Elsevier Science.
- Cooperrider, D.L. and S. Srivastva (1987) "Appreciative Inquiry in Organizational Life," In W. Pasmore and R. Woodman (Eds.), *Research in Organizational Change and Development*, Volume 1, Greenwich, CT: JAI Press, pp. 129-169.
- Dewey, J. (1981) *The Philosophy of John Dewey*, Chicago: University Of Chicago Press
- Dougherty, D, H. Barnard and D. Dunne (2005) "The Rules and Resources that Generate the Dynamic Capability for Sustained Product Innovation," *Qualitative Organizational Research Best Papers from the Davis Conference on Qualitative Research*, K. Elsbach, ed., Greenwich Ct: Information Age Publishing, pp. 37-74.
- Dougherty, D., L. Borrelli, K. Munir and A. O'Sullivan (2000) "Systems of Organizational Sensemaking for Sustained Product Innovation," *Journal of Engineering and Technology Management*, (17), pp. 321-355.
- Dourish, P. (2004) *Where the Action Is: The Foundations of Embodied Interaction*, Cambridge, Mass.: The MIT Press.
- Faust, J. (2005) "The Creative Regression within the Design Processes in Enterprises" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Foucault, M. (1977) *Discipline and Punish: The Birth of the Prison*, New York: Pantheon Books.
- Galbraith, J. (1995) *Designing Organizations*, San Francisco: Jossey-Bass.
- Gergen, K. (1982), *Toward Transformation in Social Knowledge*, Springer-Verlag: New York.
- Hevner, A.R., S.T. March, J. Park, and S. Ram (2004) "Design Science in Information Systems Research," *MIS Quarterly*, 28(1), pp 75-105.
- Kruglanski, A. W. and D. M. Webster. (1996) "Motivated Closing of the Mind: 'Seizing' and 'freezing'," *Psychological Review*, 103(2), pp. 263-283.
- Iansiti, M. (1993) *Real World R&D: Jumping the Product Generation Gap*, *Harvard Business Review*, May-June, 138-147.
- Jelinek, M. and C. Schoonhoven (1990) *The Innovation Marathon: Lessons From High Technology Firms*, Oxford: Basil Blackwell.

- Laszlo, C. (2003) *The Sustainable Company: How to Create Lasting Value Through Social and Environmental Performance*, Washington, DC: Island Press.
- Lawrence, P. and J. Lorsch (1967) *Organization and Environment*, Boston: Harvard School of Business Administration Press.
- Leonard, D. (1998) *Well-Springs of Knowledge: Building and Sustaining the Sources of Innovation 2nd Ed.*, Boston: Harvard Business School Press.
- Leonardi, P.M. (2005) "Integrating Programs on the Social Construction of Technology Across the Implementation Line" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Levina, N. (2005). "Collaborating on Multiparty Information Systems Development Projects: A Collective Reflection-in-Action View," *Information Systems Research*, 16(2), pp 109-130.
- Levina, N., and E. Vaast (2005) "The Emergence of Boundary Spanning Competence in Practice: Implications for Implementation and Use of Information Systems," *MIS Quarterly*, 29(2), pp 335-363.
- Maguire, S., C. Hardy and T.B. Lawrence (2004) "Institutional Entrepreneurship in Emerging Fields: HIV/AIDS Treatment Advocacy in Canada," *Academy of Management Journal* 47(5), pp 657-679.
- Markus, M.L., C. Steinfield and R. Wigand (2006) "Industry-wide IS Standardization as Collective Action: The Case of the US Residential Mortgage Industry," *MIS Quarterly* (forthcoming)
- Mintzberg, H. (1979) *The Structuring of Organizations*, Englewood Cliffs, NJ: Prentice Hall.
- Mortensen, M. and P. Hinds (2002) "Fuzzy Teams: Boundary Disagreement in Distributed and Collocated Teams," in: *Distributed Work*, P. Hinds and S. Kiesler (eds.), Cambridge: MIT Press.
- Orlikowski, W. (2002) "Knowing in Practice: Enacting a Collective Capability in Distributed Organizing," *Organization Science*, 13(3), pp. 249-273.
- Plato (circa 360 BC) *Timaeus and Critias*, Translated by Desmond Lee, (1971) London, England: Penguin Books, p. 69.
- Pelz, D. and F. Andrews (1966) *Scientists in Organizations*, New York: Wiley.
- Pentland, B.T. and M.S. Feldman (2005) "Designing Routines: Artifacts in Support of Generative Systems" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Ribes, D. and G. Bowker (2005) "A Learning Trajectory for Ontology Building," <http://epl.scu.edu:16080/~gbowker/Ribes%20and%20Bowker%20--%20A%20Learning%20Trajectory%20for%20Ontologies.pdf>
- Ring, P.S. and A.H. v.d Ven (1994), "Developmental Processes of Cooperative Interorganizational Relationships," *Academy of Management Review*, 15, pp. 90-118
- Robson, L., H. Bradbury and D. Good (2005). "What Keeps it Together: Designing Inter-organizational Collaborations," *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Romme, A.G.L., and G. Endenburg (2006) "Construction Principles and Design Rules in the Case of Circular Design," *Organization Science* (17:2)

- Schon, D. (1983) *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books
- Seligman, M.E.P. and M. Csikszentmihalyi (2000) "Positive Psychology - An Introduction," *American Psychologist*, 55(1), pp. 5-14.
- Shirky, C. (2005) "Ontology is Overrated: Categories, Links, and Tags," http://www.shirky.com/writings/ontology_overrated.html
- Simon, H.A. (1996) *The Sciences of the Artificial*, 3rd Edition, Cambridge, MA: The MIT Press.
- Stamps, J. and J. Lipnack, (2005a) "Us: A Theory – A Science of Organization Networks" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Stamps, J., and J. Lipnack (2005b) "Hubs in the Diamond the New Science of Organization Networks," http://netage.com/pub/whpapers/Hubs-in-Diamond_NetAge-wp2.pdf
- Te'eni, D. (2005) "On Simply Being Positively Mechanistic – Mechanisms for Adaptivity" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Thatchenkery, T. and C. Metzker (2006) *Appreciative Intelligence: Seeing the Mighty Oak in the Acorn*, San Francisco: Berrett-Koehler Publishers.
- The Standish Group (2001). *The Chaos Project Report*, West Yarmouth, MA.
- Tsoukas, H. (1996) "The Firm as a Distributed Knowledge System: A Constructionist Approach," *Strategic Management Journal*, 17, pp. 11-25.
- Tushman, M. and C. O'Reilly (1997) *Winning Through Innovation*, Boston: Harvard Business School Press.
- Venable, J.R., (2005) "Using Coloured Cognitive Maps to Support Design with a Positive Lens" *Working Conference on Designing Information and Organizations with a Positive Lens*, Cleveland, Ohio. <http://weatherhead.case.edu/design/papers.html>
- Vickers, G. (1965) *The Art of Judgment*. New York: Basic Books.
- Webster, D. M. and A. W. Kruglanski. (1994) "Individual Differences in the Need for Cognitive Closure," *Journal of Personality and Social Psychology*, 67, pp. 1049-1062.
- Weick, K. (1995) *Sensemaking in Organizations*. Thousand Oaks, CA: Sage.
- Westley, F.R. (1990) "Middle managers and strategy: Microdynamics of inclusion," *Strategic Management Journal*, 11(5), pp. 337-351.

ABOUT THE AUTHORS

Michel Avital is an Assistant Professor of Information Systems at Case Western Reserve University. His research focuses on the social aspects of information technologies and emphasizes a positive stance toward our capacity to construct better organizations and technologies. Michel has published articles on topics such as information systems design, creativity, knowledge sharing and appreciative inquiry. He has an interest in information environments and technologies that promote and encourage respect for human values, self-growth, interpersonal relationships, collaborative action, organizational agility, and social action. Michel is guided by the premise that information technologies are agents of organizational and social innovation, and that their consideration is vital to our success.

Richard J. Boland Jr. is Professor of Management at Case Western Reserve University and a Senior Research Associate at the Judge Institute of Management at the University of Cambridge. He was founding editor of *Information and Organization* and does qualitative studies of individuals as they design and use information. His interest is in how people make meaning as they interpret situations in an organization or as they interpret data in a report. He has studied this hermeneutic process in a wide range of settings and professions, but primarily has focused on how managers and consultants turn an ambiguous situation into a problem statement and declare a particular course of action to be rational. He has approached this in a variety of ways, including symbolic interaction, metaphor, cause mapping, frame shifting, language games, and exegesis. Most recently he is fascinated with narrative and design as modes of cognition that are systematically undervalued, yet dominate our meaning making.

Brian S. Butler is Associate Professor of Business Administration in the Joseph M. Katz Graduate School of Business at University of Pittsburgh. His research interests include the development and modeling of online communities, the interplay of power and information technology in organizations, and techniques for managing and developing complex information systems to support reliable organizational and individual performance. Recent work by Dr. Butler has appeared in *Information Systems Research*, *MIS Quarterly*, *Communications of the ACM*, and *Organization Science*.

Deborah Dougherty is a Professor of Management and Global Business in Rutgers Business School at Rutgers, the State University of New Jersey. After working for ten years in the trenches of large public bureaucracies, Deborah Dougherty received her Ph.D. in Management from M.I.T. She held academic positions at the Wharton School and McGill University, and is now Professor at Rutgers University. Her scholarship concerns organizing for sustained innovation in complex organizations; new product development; innovation in services; and knowledge management. She teaches *Managing Technology and Innovation*, *Principles of Management*, *Managing Strategic Transformation*, and PhD seminars in *Qualitative Methods and Organization Theory*. She was elected chair of the Technology and Innovation Management Division of the Academy of Management, is a senior editor for *Organization Science*, and has served or is now serving on the editorial boards for six other journals.

Matthew Fineout is an architect and partner at EDGE studio an architectural firm in Pittsburgh Pennsylvania and an adjunct associate professor at Carnegie Mellon University. He holds a Bachelor of Fine Art from the University of Michigan and a Master of Architecture from the Southern California Institute of Architecture. From 1990 to 2000 he was an associate at Frank Gehry & Associates. Significant projects there include the Weisman Art Museum, University of Minnesota; The Peter B. Lewis, Weatherhead School of Management, Case Western Reserve University, Cleveland Ohio and the Guggenheim Museum, Bilbao, Spain. His current focus is the integration of computer technologies in the architectural field to develop unprecedented architectural projects both in terms of form and in terms of the construction process. Significant projects with EDGE include the Gateway Center Subway Station for Pittsburgh Pennsylvania, the New Hazlett Theater, The Erie Art Museum in Erie Pennsylvania and the Carnegie Library of Pittsburgh.

Wendy Jansen is research professor Organisational Sciences at the Russell Hobbes University and research fellow at the Economic Faculty of the University van Amsterdam (The Netherlands). She is the author of over 100 books and articles on the design of organizations, networks and business models. Currently she is studying the design of organizations, which are implementing process management and the images that are underlying this implementation.

Natalia Levina is an Assistant Professor in the Information, Operations, and Management Sciences department at the Stern School of Business, New York University. Her main interest is in understanding how people span organizational, professional, cultural, and other boundaries in the process of developing and using IS. She uses qualitative methods and a range of social theories in her work. She currently studies boundary spanning in the context of global IS outsourcing and offshoring. Natalia has published widely on this topic in top IS and management

journals and has received two dissertation awards from ICIS and the Academy of Management conferences for her work. Recently, she has been awarded Alfred P. Sloan Industry Studies Fellowship to investigate boundary spanning in global IT services industry. Natalia has served as an editor at ICIS and HICSS conferences and she is an Associate Editor of ISR.

Kalle Lyytinen is Iris S. Wolstein Professor of Information Systems in Case Western Reserve University. He is the Chief Editor of JAIS and has served on the editorial boards of several leading IS journals including MISQ, EJIS, JSIS, Information Systems Research, and many others. He has published over 70 articles and edited or written ten books. His research interests include critical theory, information system theories, system design, computer supported cooperative work, and diffusion of complex technologies.

Will Rifkin, PhD, is Director of the Science Communication Program in the Faculty of Science at the University of New South Wales in Sydney, Australia. He is an engineer trapped in the body of a sociologist with degrees from MIT, University of California-Berkeley, and Stanford University. He was affiliated with the Institute for Research on Learning in Silicon Valley in the 1990s and later helped to launch the Program on Social and Organizational Learning at George Mason University. In the past decade, he has been recognized as one of Australia's most effective university instructors. His focus in research and consultancy is communication among experts and relative non-experts in settings ranging from steel mills and public hearings to doctors' offices and classrooms.

John R. Venable is Associate Professor and Head of the School of Information Systems, Curtin University of Technology, in Perth, Western Australia. He holds a B.S. from the United States Air Force Academy and an M.S. in Management Science, an M.S. in Advanced Technology, and a PhD in Advanced Technology (Information Systems) from Binghamton University, USA. He has taught and researched in IS at Binghamton University and Central Connecticut State University in the USA, Aalborg University in Denmark, the University of Waikato in New Zealand, and at Murdoch University in Perth. He is a member of IFIP Working Groups 8.2 and 8.6, AIS, AAIS, IRMA, and ACM. His main research interests are in IS development methods and practice, organizational IS and data modeling, digital library systems, Group Support Systems, organizational change, problem solving methods, and IS research methods, including Design Science Research.

Copyright © 2006 by the Association for Information Systems. Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and full citation on the first page. Copyright for components of this work owned by others than the Association for Information Systems must be honored. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers, or to redistribute to lists requires prior specific permission and/or fee. Request permission to publish from: AIS Administrative Office, P.O. Box 2712 Atlanta, GA, 30301-2712 Attn: Reprints or via e-mail from ais@aisnet.org



Communications of the Association for Information Systems

ISSN: 1529-3181

EDITOR-IN-CHIEF

Joey F. George
Florida State University

AIS SENIOR EDITORIAL BOARD

Jane Webster Vice President Publications Queen's University	Joey F. George Editor, CAIS Florida State University	Kalle Lyytinen Editor, JAIS Case Western Reserve University
Edward A. Stohr Editor-at-Large Stevens Inst. of Technology	Blake Ives Editor, Electronic Publications University of Houston	Paul Gray Founding Editor, CAIS Claremont Graduate University

CAIS ADVISORY BOARD

Gordon Davis University of Minnesota	Ken Kraemer Univ. of Calif. at Irvine	M. Lynne Markus Bentley College	Richard Mason Southern Methodist Univ.
Jay Nunamaker University of Arizona	Henk Sol Delft University	Ralph Sprague University of Hawaii	Hugh J. Watson University of Georgia

CAIS SENIOR EDITORS

Steve Alter U. of San Francisco	Jane Fedorowicz Bentley College	Chris Holland Manchester Bus. School	Jerry Luftman Stevens Inst. of Tech.
------------------------------------	------------------------------------	---	---

CAIS EDITORIAL BOARD

Erran Carmel American University	Fred Davis Uof Arkansas, Fayetteville	Gurpreet Dhillon Virginia Commonwealth U	Evan Duggan U of Alabama
Ali Farhoomand University of Hong Kong	Robert L. Glass Computing Trends	Sy Goodman Ga. Inst. of Technology	Ake Gronlund University of Umea
Ruth Guthrie California State Univ.	Alan Hevner Univ. of South Florida	Juhani Iivari Univ. of Oulu	K.D. Joshi Washington St Univ.
Michel Kalika U. of Paris Dauphine	Jae-Nam Lee Korea University	Claudia Loebbecke University of Cologne	Sal March Vanderbilt University
Don McCubbrey University of Denver	Michael Myers University of Auckland	Fred Niederman St. Louis University	Shan Ling Pan Natl. U. of Singapore
Dan Power University of No. Iowa	Kelley Rainer Auburn University	Paul Tallon Boston College	Thompson Teo Natl. U. of Singapore
Craig Tyran W Washington Univ.	Upkar Varshney Georgia State Univ.	Chelley Vician Michigan Tech Univ.	Doug Vogel City Univ. of Hong Kong
Rolf Wigand U. Arkansas, Little Rock	Vance Wilson U. Wisconsin, Milwaukee	Peter Wolcott U. of Nebraska-Omaha	Ping Zhang Syracuse University

DEPARTMENTS

Global Diffusion of the Internet. Editors: Peter Wolcott and Sy Goodman	Information Technology and Systems. Editors: Alan Hevner and Sal March
Papers in French Editor: Michel Kalika	Information Systems and Healthcare Editor: Vance Wilson

ADMINISTRATIVE PERSONNEL

Eph McLean AIS, Executive Director Georgia State University	Reagan Ramsower Publisher, CAIS Baylor University	Chris Furner CAIS Managing Editor Florida State Univ.	Cheri Paradice CAIS Copyeditor Tallahassee, FL
---	---	---	--