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Introduction

We live in turbulent times. Momentous change is occurring on every front including politics, culture, and technology. As social situations expand in complexity and require unprecedented responses, design has come to the forefront of intervention strategies. Where companies once thought of the designer as someone to provide an attractive shape for a product, designers are now integral to the planning processes of different types of organizations, not only those geared to the market but also others whose primary emphasis is promoting wellbeing through the organization of human action. Likewise, designers are becoming more active in smaller-scale local situations where they lend their expertise to processes of social change.

The genesis of Derek Miller's and Lisa Rudnick's article "Trying it on for Size: Design and International Public Policy" was a lecture to an audience of designers in London. Neither Miller nor Rudnick is a designer; rather they are experts in public policy who work for the United Nations' Institute for Disarmament Research. As they told their London audience, colleagues who work with them as diplomats, security experts, or UN field staff are skeptical of design thinking as it might to apply to their concerns. Miller and Rudnick, however, argue that design has much to contribute to the development of programs aimed at improving international security. A big lack in planning such programs, they argue, is local knowledge, which would be a welcome antidote to the reliance on more generalized public policy that has no connection with local situations. They write about the United Nations' involvement in complex situations where a better understanding of how people actually live would enhance the agency's intervention in those situations. One value of design they claim is to encourage a deep understanding of the client in order to achieve a successful result. They propose a new strategy called Strategic Design in Public Policy, which requires bringing together different elements of a planning process to design social actions for positive ends.

Ashley Hall echoes Miller and Rudnick's call for new design interventions in her/his article, "Experimental Design: Design Experimentation." Hall envisions the designer as someone who can anticipate new outcomes by pushing the boundaries of what designers normally do. She/he advocates a new role for the designer as someone who works at what she/he calls frontier edges, which are those that are beyond current industrial output and attract more ambitious designers. While her/his interest emphasizes markets rather than the critical situations that concern Miller and Rudnick, there is a shared vision of a larger role for designers in the processes of technological and social innovation.

Victoria Gallagher, Kelly Martin, and Magdy Ma combine rhetoric and design in their article "Visual Wellbeing: Intersections of Rhetorical Theory and Design," They discuss two projects in the visual arts—the work of sculptor Andy Goldsworthy and a public art project in a Hong Kong housing estate. The authors introduce the concept of visual wellbeing, which is based on two Greek terms, *enargeia* and *eudaimonia*. Together these terms denote a vivid and fulfilling visual experience. The authors' focus on rhetoric as an instrument of wellbeing offers a more profound way to understand the effects of art and visual communication on an audience. While they do not propose a new practice for artists or designers, they do suggest a greater consequence of existing practices.

Jørn Guldberg, writing about the exhibition *Design in Scandinavia* that was organized in the 1950s, shows that design was vital to discussions of national identity in the Nordic countries during that period. The exhibition was a joint effort of Norway, Denmark, Sweden, and Finland to forge a mythic narrative of "Scandinavian design," while the planning process was actually rife with competition and strategic actions to create a compelling story that the exhibition's objects would support. Guldberg makes clear that design culture includes far more than designed objects. It involves curators, publicists, marketing experts, journalists, and retailers, all of whom have a stake in the larger meanings that can be constructed from the objects themselves.

Cigdem Kaya and Burcu Yagiz write about craft neighborhoods in Istanbul to characterize their discussion of design in informal economies. In comparison with other authors in this issue—Miller and Rudnick or Morelli—they are interested in designers as makers but not in the conventional sense of what industrial designers do. Their research focuses on collaborations between trained industrial designers and traditional craftsmen. Based on interviews, they describe how such collaborations work, particularly the ways that formal training is combined with local knowledge. Their emphasis on the local knowledge of craftsmen echoes Miller and Rudnick's call for a greater use of such knowledge in the design of social action programs. The results that Kaya and Yagiz describe also support the claim that local knowledge can disappear if it is not preserved and used.

Soojin Jun, Miso Kim, and Joowan Lee return is to the theme of complex situations in which designers are called upon to intervene. They emphasize the system diagram as an instrument of intervention to help unravel complexities, whether they are found in a physical place, an organization, or even in the design process itself. They make use of rhetoric to enumerate four types of diagrams, each of which has a specific purpose and then they demonstrate how these diagram types were used in the design of a complicated Domestic Mail Manual for the U.S. Postal Service.

Their enumeration of diagram types makes clear how valuable rhetoric can be in delineating design methods that are based on service to users.

Nicola Morelli's account of three service design projects developed at the School of Architecture and Design (A&D) at Aalborg University in Denmark demonstrates the possibilities for organizing human action that Miller and Rudnick called for. The projects Morelli describes are based on the idea of social networks rather than hierarchical chains of command. A long time advocate of sustainable design, Morelli sees in these projects a way to accomplish multiple purposes: to provide a service that has economic value, to devise design projects that do not involve producing new objects, and to address an issue of social concern. The projects are embedded in a well developed theory of how new forms of design can contribute to social betterment.

Ethel Leon's article on the Instituto de Arte Contemporánea, which was created in Sao Paulo, Brazil in the early 1950s, describes a little-known design school whose influences included Chicago's New Bauhaus as well as the commercial design practice of Raymond Loewy. The school, which was connected to the recently established Museum of Contemporary Art, was spearheaded by the art historian Pietro Bardi and his wife, the architect Lina Bo Bardi. It preceded by a few years the better-known Brazilian design school in Rio, ESDI, which was strongly influenced by the Hochschule für Gestaltung in Ulm. The Instituto de Arte Contemporánea is part of a history of modern design in Brazil that is just beginning to emerge as Brazilian scholars in increased numbers do research on the topic.

The range of articles in this issue, which includes both historical and contemporary themes, reinforces our belief that design research should be as attentive to the past as to the present and future. *Design Issues* makes a point of joining articles on historical topics with those that address more contemporary concerns because history provides a context for the present just as the present illuminates the significance of the past.

Bruce Brown
Richard Buchanan
Dennis Doordan
Victor Margolin

Nigel Whiteley, 1953-2010

The loss of Nigel Whiteley towards the end of 2010 is as keenly felt in the Art and Design community as it is in his home institution of Lancaster University. At Lancaster he showed at an institutional level those characteristics that brought him recognition beyond Lancaster. Nigel was a wonderful colleague – always ready to listen to a good idea, always ready to challenge, with tact and humanity, a bad one. I use the word humanity in describing Nigel's interaction with others quite deliberately – he very often stood as a good example of how dignified the human condition could be. Nothing exemplifies this better than his passing – he used his last weeks to meet with each friend individually, break bread with them for one last time, and say farewell. Those he left behind felt comforted and loved by this. He also spent those days saying a personal farewell to other friends of his – works of art. I heard with amazement and no small measure of admiration how Nigel, shortly before his death, made one last journey to the Lady Lever Art Gallery to see some of his favourite pieces there for one last time. It cannot have been an easy journey for him. However, I am quite sure that the visit to the gallery brought him great comfort, and was a fitting counterpart to the meetings he had been holding with friends.

Nigel's commitment to Art and Design is clear – yet his contribution was often subtle. When the future of Art at his home institution looked bleak, Nigel campaigned quietly, but effectively, not simply to save his subject, but to have that subject re-imagined in the context of a broader Arts offering in the institution. Given that this was the second time that Nigel had re-imagined Art at Lancaster, having previously revived and reoriented the subject in the 1980s, one must marvel at the imagination and verve that his passion for Art and Design fostered. It also chimed well with his intellectual agenda – he was often heard to say "the only way to prove you've got a mind is to change it occasionally." That flexibility of thought and the fecund imagination behind it do more than simply save his subject at Lancaster, it provided a transformation in the Arts at the University which was welcomed by all. I, and many of his colleagues, will deeply miss him both for his personal qualities and for his wise contribution to many debates.

I am quite sure that the Nigel I knew at the institutional level will be missed just as much at the national and international level. The qualities that distinguished him at Lancaster distinguished him just as much beyond Lancaster. His publications are testament to that distinction and show clearly the breadth and generosity of his scholarship. His first book *Pop Design* revealed the impact of art and ideas of the 1960s on manufacturing, graphics and industrial design. *Design for Society* anticipated, 20 years ago, issues of sustain-

ability, recycling and ethical consuming that we are yet to properly address today. In *Rayner Banham: Historian of the Immediate Future* Nigel formed a new scholarly approach, the intellectual biography, allowing for a fine-grained analysis of a thinker who influenced him deeply.

It is with pleasure that I can say that Nigel's contribution is not concluded – a forthcoming, posthumously published, book by him on Lawrence Alloway is in press (Manchester University Press, forthcoming). This will provide a curiously appropriate last word from Nigel, as in it he considers the contribution to Post-Modernism of Pop Art, The Independent Group and the art and ideas of the 1960s/70s. So, as in twilight at the end of a bright summer's day, there are a few rays of sunshine to come which will remind us of the brilliance, and the warmth, of Nigel Whiteley.

Tony McEnery
Dean, Faculty of Arts & Sciences
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Trying It on for Size: Design and International Public Policy

Derek B. Miller, Lisa Rudnick[1]

Lecture delivered to the London College of Communication at the event, "The Limits of Design: Designing for Security and Sustainable Development," November 11, 2009

Before we begin, we should note that we are not here speaking on behalf of either the United Nations (UN) generally or the United Nations Institute for Disarmament Research (UNIDIR) specifically. As researchers at UNIDIR, we are afforded both a valuable space to generate ideas for the improvement of UN operations or practices, and a chance to look and comment upon its performance with an interest in doing so. If at any point we seem less than fully impressed by UN conduct, you should think of our comments less as criticism and more as … tough love.

This event is quite exciting for us. It is the first time that we have had the opportunity to talk about design to a room full of actual designers and people concerned with design questions. Normally, the people that we talk to about program design are diplomats, practitioners in security, development, or humanitarian action, academic researchers, or field staff of the United Nations.

The response we often get, when speaking of design, is akin to the look one makes when handed unfamiliar food: alternatively respectful, skeptical, or suspicious, and sometimes a bit put off.

Yet, we speak about it often, and we think about it even more. The reason is that we think design looks promising for addressing some of the challenges faced in the international public policy domains of security, development, and humanitarian action. And we now believe that a new agenda needs to be formed around the investigation of the capabilities and limitations of design as a tool for public policy.

This event is also a bit intimidating for us precisely *because* it is the first time we have had a chance to talk to a room full of designers. In many of our lectures, we argue for the benefits of design processes and techniques. We advocate for the conceptual and procedural value of design space at the nexus between defining problems and taking programmatic action. But ultimately, we need to learn from designers, from you, whether our suspicions about the power of collaboration here may prove as fruitful as we suspect.

In international public policy, design is the dark space between knowledge and action. It is where the murky terms, metaphors, and conventional wisdom lurk that are often antagonistic to design as a professional activity. Design, after all, requires a

1 Derek B. Miller, PhD, is Director of the Policy Lab and previously served as Senior Researcher and project manager at UNIDIR. Lisa Rudnick is Senior Researcher and project manager at UNIDIR, and an associate of the Policy Lab. Miller and Rudnick are co-designers of the Security Needs Assessment Protocol. The views expressed here do not represent those of the UN or the UNIDIR. The authors would like to thank Lucy Kimbell from the Said School of Business, Oxford University, and Alison Prendeville from the London College of Communication for co-hosting the event at which this lecture was presented.

certain humility before a problem—a respect for the challenge and complexity being faced, and a willingness to engage that problem on its own terms before rushing to action. This patience and humility are not often the qualities found in international public policy, where civil servants too often treat their work mechanically and fulfil policy with known treatments. These tendencies suppress the curiosity needed to imagine new possibilities—to innovate, to solve.

In that liminal zone between knowledge and action, we hear phrases repeated, such as "aren't we doing that already?" "We already know what the public needs," "We already had a brainstorming session on that," or this, the phrase to usher in the end of days, "It's all very political."

So in these comments, think of us as two people coming to design from a place outside it—namely, from work in empirical, qualitative research on security and international public policy, on the one hand, and, on the other, from the perspective of policy practitioners engaged with the international policy and programming community. We are therefore coming to design in the hopes of supporting a potential resource in bringing knowledge to action.

Although we are both quite new to design as a field (we have only started to learn about it, and our interest grows daily), we're not actually new to design as a process. As academics, we have a lot of experience with research design. As UN research staff, we have a good deal of experience with project design. Both of these tasks require a lot of pencil chewing and staring at white boards. We ask many of the same kinds of questions that designers ask, and the one question that probably sums them all up is this: how do we get from here to there?

If designers and international public policy professionals are going to work together, we need some common agenda to serve as a platform from which to proceed. A productive place to begin is to find out where we are right now. In that spirit, we begin by telling you how our team at UNIDIR got here so that, together, we might find a way to continue this journey forward as a community. This community we form exists as a function of common questions we share; it possesses a similar sense of wonder about the fit of design into public policy generally, and it wants to bring its different skills together so that we might do some good.

How We Got Here

In 2003 we came to the UNIDR with a project idea called the Security Needs Assessment Protocol (SNAP). We started with the observation that many security-related programs run by the UN were either unsuccessful or at least far from optimal. "Programs" here refers to distinct, community-level sets of activities that UN operational agencies had been undertaking to try to prevent conflict, manage violent crises, or build peace and stability in post-conflict societies.

The types of programs involved in such work varies, but to illustrate, such projects include voluntary weapons collection programs after wars, demining both to reduce casualties and to stimulate economic recovery, creating public awareness programs to explain new state laws or policies, and building new mechanisms for reporting on crime or state abuses. The list goes on, and it is a long one.

It was our observation that one of the key reasons for the failure or sub-standard performance of many of these programs was lack of local knowledge. The term, "local knowledge," was coined by the anthropologist Clifford Geertz,[2] who explained that the purpose of anthropology, as he understood and practiced it, was to "determine what this people or that take to be the point of what they are doing." In other words, it was to come to "understanding of understandings not our own."

The UN is not centrally involved in that activity. And while we are not calling for UN operational agencies to become departments of anthropology, we do wish to force the foundational and consequential point that, as an institution, the UN is trying to carry out some rather complex social activities in places where we have a less than stellar understanding as to how people live, what they might need to contribute to those lives, and what the local people might take to be *our* point in being there. We are not overstating the point to say that this knowledge is a matter of life and death and that designing more appropriate local action is the nexus of practice between knowledge and action itself. It can make the difference between success and failure in international public policy.

With the highest stakes in mind, our team at the SNAP project spent about a year looking through more than 100 assessment tools and design processes within the UN—on topics as broad as mine action to livelihood assistance—trying to understand the conceptual and procedural basis from which goals are turned into sets of local actions. We concluded that not a single agency was taking cultural matters seriously in their design of programs, and this was a major problem. The essence of that problem is that the agencies have no comparative basis upon which to determine—or even suspect—whether one course of action, in a particular locale, is better than another. After all, some tabled design options are bad ones. Discovering them is part of the process, but in separating the wheat from the chafe, one needs some basis to make certain claims about the value of action.

The argument we are making about using local knowledge to design local action is neither an ideological one about people having a right to be heard, nor an attempt to democratize the process of participation as some kind of inherent good. Rather, our argument is a decidedly pragmatic one.

2 Clifford Geertz, Local Knowledge: Further Essays in Interpretive Anthropology (USA: Basic Books, 1983).

It was a point expressed perfectly by Dr. Roz Lasker, a member of our advisory group, when she testified at a U.S. Congressional Briefing on Rational Homeland Security in 2007 and explained that "we need to learn from the public before we can protect the public."[3]

In short—and as we think you'd agree—a deep understanding of your client, beneficiary, or constituency, is absolutely essential if your design is going to be successful (at least from the users' point of view). But while "participatory approaches" are broadly employed by the UN working in communities (with varying degrees of skill and success), unfortunately, the notion of design as a tool to create value in services remains quite alien to the UN system and to international public policy in general. This "blind spot" around design rather prejudices the system against both research and design, and fails to make space for the complex interplay between the two.

Whereas design appears to both encourage and necessitate the deep understanding of your client, the achievement of public policy, perhaps ironically, does not. Whereas a designer sits between the problem and the solution and makes use of that moment of wonder to imagine innovative means of bringing a new solution into being, the policy practitioner is less a designer than a civil servant. That person selects the proper course of conduct from existing policy. The service being provided therefore serves the end user to a lesser degree than it serves the makers of the policy. There is, in fact, good reason for this imbalance, which is that the policy's legitimacy is reposed on a political philosophy of democracy and representation. In effect, policy is a product of democracy, and serving policies is therefore serving the democratic ideal.

The designer and the policy practitioner therefore sit at the same nexus between problem and action, but they treat it in different ways. We would like to suggest that both are entirely reasonable and understandable treatments of their challenges. However, they are different paradigms, and each makes possible different forms of action in the service of their master. For simplicity, we might say that the designer is looking down to an individual user, whereas the civil servant is looking up to the entire voting public and the expression of its communal will through the policy apparatus.

This observation means challenging one paradigm of work with another, which calls for a great deal of reconceptualization of existing systems at the level of government, international organizations, and others who work through policy and mandate systems to craft local action.

On the basis of this observation about the interplay between these two paradigms at the very juncture of design, we have arrived at two agenda items in need of attention, for the UN specifically and for international public policy more generally, as a means of achieving greater effectiveness. The first agenda item is *the generation of local knowledge relevant to programming in the fulfilment of public*

3 Roz D. Lasker, Statement at the "Congressional Briefing on Rational Homeland Security: Lowering Obstacles and Creating Economically and Socially Sensible Policies," September 2007, http://www.redefiningreadiness.net/pdf/RDL91907.pdf (accessed 2/3/2011).

policy, and the second is *the application of local knowledge to those programming processes.*

In identifying these agenda items, we recognized that they present a need for new kinds of social knowledge to apply to problems on peace and security. But we also saw that the knowledge produced will not apply itself. One needs to be serious and attentive to both the knowledge and its application to craft viable and effective solutions.

When the SNAP project began formally at the end of 2006, with the financial backing of the Dutch Ministry of Foreign Affairs and the Swedish Ministry of Foreign Affairs, we initially focused our attention on the first part of the problem: namely, the generation of local knowledge.

We worked hard with a stellar group of international advisors on aligning tools and techniques from the academy to the kind of constraints faced within a UN operational context.[4] Internal constraints include matters such as timing, staffing, money, political pressure, and rules and regulations; external constraints, not usually confronted in academic research, include carrying out work in places with explosive remnants of war, improvised explosive devices, widespread small arms availability, hostile government forces, fatal traffic systems, terrorism, and abductions. We asked ourselves such questions as:

- How can we generate rigorous cultural knowledge related to problems of security that would be of use to programming?
- How can this be done rapidly?
- How can this be done ethically?
- How can this be done safely for all of those involved?

With these and additional questions and constraints well in mind, we put together field teams, and then off we went to make some rather concerted efforts to generate security needs assessments for the United Nations in both Northern Ghana, which was coping with an unresolved inter-tribal conflict at the time, and southern Nepal, which is now recovering from a civil war and facing massive political instability. Having returned from the field just recently, we're actually still involved in the post-field analysis from our work in Nepal.

What we now know is that to improve local level programming with local knowledge, you need two additional and crucial elements. The first is a mechanism for applying knowledge to action. Said differently, you need to take the design juncture very seriously, and a *way* to do so, to create processes that systematically bring local knowledge to action through the use of relevant design processes, practices, or techniques in a responsible manner.

The second thing you need is a client who wants this locally informed programming to happen. As of today, the UN operational agencies—from UNICEF to the Department for Peacekeeping

4 The SNAP Advisory Group consisted of Mike Agar, Ron Scollon, Gerry Philipsen, Donal Carbaugh, Tamar Katriel, Kwesi Yankah, Randolph Kent, Rom Harré, Michael Berry, Wendy Cukier, Fathali Moghaddam, and Roz Lasker.

Operations, to the UN Development Programme—have yet to be brought fully into the kind of processes that characterize the way design junctures are faced in other professional sectors. They remain in the civil servant paradigm of program designers. Although interest is slowly building, particularly among high-level people in the UN system who are both receptive to new ideas and possibly a bit exhausted by old ones, we have nevertheless not yet reached the tipping point.

Many agencies, especially in development and humanitarian work, undoubtedly see "participation" from local communities as being important to programming. However, on the research side, they do not differentiate between local opinion and local knowledge, which has an important effect on the kinds of research in which they engage, the kinds of knowledge that becomes available for use, and the things that can or cannot be accomplished with it. In this way, and in our view, "participation" edges out "understanding" in the Geertzian sense we spoke of earlier. Further, the agencies we have worked with do not see the need for design to be taken seriously as a means to increase the effectiveness of local action.

So where does that bring us? Frankly, we come to a juncture that can be a bit disheartening. Plenty remains to be done to see our vision for the SNAP project realized—that is, of bringing locally informed program and policy design to matters of community security and development. We need to generate the supply of local knowledge relevant to programming, which means stimulating and encouraging the academic community to direct their best and brightest to new questions for new purposes. We need to continue to adapt or develop techniques for generating such knowledge suited to the types of conditions and constraints already identified, and we need to create mechanisms for the application of knowledge into design processes by building bridges with the design community. We need to learn from each other so that we can find ways to fit design into public policy in tutored, wise, and instructed ways. And we *also* need to create the demand from governments, international organizations, and operational agencies for better designs to bring about more viable, cooperative, and responsible local action.

In short, we face a challenging task. But the energy is building to take that task on, and exciting things are starting to happen. Let's take a moment, then, to see where we now stand.

Where We Are Now

The SNAP team started discussing design and planning in the context of programming as early as 2003. But back then, we were thinking about design in the very limited way managers think of design in project cycles. Not until early in 2008—when we started talking seriously with Lavrans Løvlie at live | work based in London and Oslo—did we start to think about design research, design thinking, and service design. But once we started, we haven't turned back.

In taking up the lens of design thinking, certain general trends within the policy community were brought into view for us. Three in particular are worth mentioning:

1. Design junctures are either unrecognized or typically skipped over.

In trying to create the SNAP project as a "program design service" for operational agencies working in security, development, and humanitarian action, we have often found it difficult to explain both why such a service is needed, and how it can help get things done.

One of the reasons for this difficulty is that agencies often move directly from identifying problems to planning programs of action, without ever recognizing that they have reached a design juncture and that they therefore could benefit from a program design service such as SNAP.

We think of design junctures as moments when problems have been defined and decision makers are effectively provided an opportunity to either enter into a design phase or go directly to planning. In most cases, we find that agencies go directly to planning without ever having noticed that a design opportunity has actually been missed.

2. When design junctures are recognized, they are not attended to with design expertise.

For us, meeting design junctures with design expertise means first choosing to enter a design process and then deliberately creating design space. We view design space as being the measurable allocation of resources toward processes dedicated to the creation of solutions. These resources vary with context but usually include time, money, attention, people, and expertise.

Next, it means using tutored approaches to the creation of designs in the context and constraints of that space. One of the most exciting things about the field of design is that it offers a number of highly generative techniques for tabling various options to solving problems, working them through, and testing them out. There are frameworks to help guide these processes, and skills to employ in doing so.

In the particular case of public policy, in which there are ethical and moral consequences, it means the use of sound, valid, and reliable scientific knowledge, carefully applied that design space so that the design techniques result in the crafting of new solutions for social action.

If design junctures are not attended to in this way, how are they attended to?

The short answer is this: politically. This characterization could sound cynical, but we don't mean it that way. If civil servants are intended to serve the civic good, it only stands to reason that the determination of the civic good becomes a necessary task. What ends

up substituting for design as a professional practice, then, becomes what Bismarck famously called the art of the possible. Ultimately, all action in security and development is certainly subject to some political debate, so that solutions will always be subject to some artful agreement.

But we have to remember a simple fact: what is politically viable may also be utterly impossible. A group of people, after all, can agree to anything. When you try to get things done in the world, however, those smiles of self-satisfaction tend to droop.

The reason is that political agreement is the art of managing discursive and rhetorical space. It requires the manipulation of shared premises and common symbolic systems to craft a common view. But in the end, the product of that space must be subject to fulfillment in the real world. So even if we all agree that it would be wise to build a ladder to Heaven, at some point, terrestrial realities are going to force us to recognize that our designs are coming up a little short.

When we design action from evidence, rather than from mere agreement alone, we significantly challenge the presumption that political agreement—independent of evidence—is enough to constitute legitimate grounds for action. From this position of challenging the old presumptions, we find powerful motivation for moving forward.

Determining the parameters of the possible, when design is not explicitly used, inevitably becomes an intuitive task. Here, solutions are not informed explicitly by science, by local knowledge, or by prototyping. They are determined by instinctively reading and balancing competing interests among political parties or actors and then trying to advance solutions within given policy frameworks, within tight time horizons, with limited staff and limited data, and often among people who will likely disapprove of whatever is offered up, however reasonable. People who become good at this intuitive process of both analysis and decision-making in a particular professional realm are called "seasoned professionals." At some point—often based on success or failure—seasoned can even evolve into wise.

Doing things this way is actually fine up to a point, but that point is quickly reached when our intuitive analyses and design have moral consequences for others. At that juncture, a formal process of design is not only a pragmatic activity to crafting solutions but actually an ethical imperative given the consequences of our conduct.

All this invites an exciting question: What is the relationship between the art of the possible and the professional skills of design? Or put differently, does design extend the possibilities of the art of the possible in public policy?

3. The tides are turning

Our third observation is more upbeat: it is that the tides are turning. What we are beginning to see all around us—at the UN, at the World Bank, in national capitals, in research centers and universities, and in field offices—is that new opportunities for creating design space at the nexus between knowledge and action are in fact opening up. When we say "opening up," we don't mean they are naturally spreading apart like rose pedals after a spring rain. We mean to imply, rather, that if you wedge a crowbar between problems and planning and exert enough force, you can just about make space for the idea of design to slip in past bureaucratic defenses to make some kind of furtive trouble. And this is happening.[5]

We can't say why this opportunity is happening, although we like to believe our work at UNIDIR is playing a small part. We suspect, however, that a global confluence of factors are in play right now that encourage this notion of design to actually gain some purchase. These factors all converge on a rather simple but widely noticed fact: a lot of very expensive things are not working very well. For example, in passing, you may be familiar with:

- The global economy
- The war in Iraq
- The war in Afghanistan
- The Millennium Development Goals

Together, these constitute trillions of dollars either wasted, badly managed, or simply gone, and this reality is a fact completely independent of one's political views on these endeavours. Whether for or against the war in Afghanistan or the Millennium Development Goals, you cannot currently be fully satisfied with the designs used to spend your taxes—that is, if you can find the designs at all.

Governments—and even actual tax-paying citizens—are getting a bit perturbed over the cost of incompetence. Best practices of the types that PricewaterhouseCoopers uses to determine best administrative practices, or the kinds that the UN Department for Peacekeeping Operations is using to tighten its operational conduct, can indeed help raise an organization up from chaos to order when the situations being faced, time and again, are essentially the same. But in the face of diversity, uniqueness, and cultural variation, they can never help an organization innovate on the front lines of creativity or intellectual rigor.

The reason is straightforward: in many cases, especially where social worlds are concerned, the reason that best practices don't work is because no practice is universally best. Therefore, what we need to do in such cases is move from best practices to a best process approach. And that best process approach is going to need the support of researchers, designers, and policy practitioners.

It is going to need you.

5 On November 23, 2009, UNIDIR co-hosted a workshop with the Ministry of Foreign Affairs of the Netherlands and the Institute Clingendael in The Hague on *Strategic Design in Public Policy: Revisiting the Knowledge-to-action Nexus.* That event has produced a joint statement on the value of design in public policy that may serve as a useful reference point for further development.

Where We Go from Here

In cooperation with a range of dedicated and creative people, we are using our opportunities at UNIDIR to bring three domains of work to a new agenda on international public policy. We call it Strategic Design in Public Policy.[6]

Although subject to some later refinement, we now define strategic design as the systematic and deliberate practice of applying conceptual, empirical, and technical knowledge to the design of social actions to help achieve a desired goal. Our attention is firmly on matters of public importance and on international security, development, and humanitarian action in particular.

Engaging in strategic design requires expertise across a range of disciplines. It requires expertise in empirical research, including often-neglected interpretive, qualitative research grounded in empirical methods. It requires expertise in design, with its attention to divergent questions, recognizing and using design junctures and design space, prototyping, imagining worlds of possibility, and bringing them into being. And it requires policy experience so that design options can be considered against the international superstructures of, for example, international public law, international humanitarian law, and human rights law, national policies, politically binding international agreements, bi-lateral and multi-lateral relations, codes of ethics, doctrine, mandated policy, and a host of other constraining factors on design possibilities in that context.

To realize the potential of strategic design requires developments in each of these three domains of work—research, design, and policy—as well as new forms of cooperation among them. It requires that strategic design teams be formed to face challenging but worthwhile endeavors. This agenda holds out promise for cooperative talents to start to work toward some shared goals, and in the coming years, we will be working hard to advance that agenda—we hope with ever-increasing support.

What are the elements of the strategic design agenda that needs to be built? Think of this question as an invitation to conversation. To start off, we offer some questions we've considered that only you, as designers, can answer.

If strategic design, as we have defined it, offers a frame for thinking about design in the context of research on the one hand, and international public policy action on the other, then we see three key areas for reflection for the design community itself:

1. What capabilities for, or limitations to, the application of research on social or natural phenomena does design training provide?
2. What are the techniques of design that might be applicable to designing new forms of social action?
3. What skills can designers bring to the crafting of new programmatic solutions that are characterized by the kinds

6 In June, 2010, UNIDIR co-hosted the Conference on Strategic Design and Public Policy in Glen Cove, New York, with the Said Business School at the University of Oxford, and the Center for Local Strategies Research of the University of Washington. The conference report can be found at http://www.unidir.org/bdd/fiche-active.php?ref_active=337 (accessed 2/3/2011) and also at https://sites.google.com/site/strategicdesignandpublicpolicy/home (accessed 2/3/2011).

of ethical, legal, organizational, procedural, and political constraints that define the strategic design space?

Addressing these three questions helps to identify the limits of design at present, and in doing so, helps identify some new frontiers. It also invites us to ask a new set of questions:

1. What kinds of challenges exist for the application of knowledge, especially empirical knowledge, to design processes?
2. What kinds of collaboration does this conclusion invite?
3. What means of collaboration might exist?
4. What means of collaboration might be created?

We believe that innovation and design have a crucial role to play in creating solutions to our most pressing problems. We also believe that for this approach to fulfill its potential, we need to find ways of bringing the domains of research, design, and policy together in tutored, reflective, and intentional ways. Done well, this cooperative effort could have lasting effects in many areas. It might help move us, in the final assessment, beyond the mere art of the possible in international public policy and a little closer to the possibilities of design.

Experimental Design: Design Experimentation

Ashley Hall

Figure 1
How the world is made

Industrial Design Experimentation

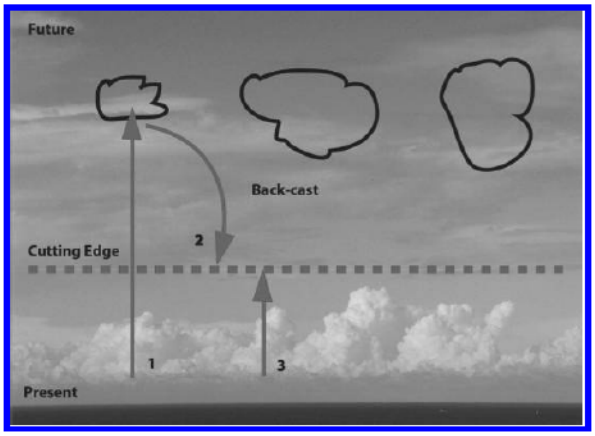
Creativity and experimentation are often considered to be core elements of the industrial design process. The diagram in Figure 1 shows the increasing levels of creativity, experimentation and risk associated with industrial output, ranging from imitation to experimentation. We see that a large amount of design necessarily consists of the reproductions of essential commodity items, including nails, screws, bricks, bolts, and other universal artifacts. Further up the scale, products start to become differentiated to have some market appeal. Iteration ensures that continual incremental improvements are made to enable increased performance and to keep pace with functional and technological developments. Innovation launches "new to the world" products, while experimentation sits at the very frontier of industrial output by proposing "future" offerings.

An alternative method of situating experimental design is to see it in terms of three five-year phases of technological development. In the first phase, products that will be available in the next five years are on the market but very expensive and often in alpha or beta development formats. Second phase products are working as test rigs in research and development laboratories and are not yet reliable or developed enough to be commercially launched. The third phase products, projected for manufacture in approximately 15 years, can be described by scientists and technology forecasters and may have some initial benchtop test-rigs or feasibility studies but in the main remain theoretical. Experimental design sits largely in the second phase, where outputs can be focused and developed through commercial application routes to market.

The effectiveness of design thinking is continuing to draw designers into progressively earlier and more fundamental phases of product evolution. A new model of parallel, interdisciplinary collaboration, where scientists, designers, and engineers work concurrently, is replacing the old model of science, to engineering, to product development. Instead of being given a technology "space package" to encase, designers in progressive organizations are often to be found at the forefront of new product generation.

The phrase "experiment" is used widely in industrial design, and yet it was surprising to review industrial design literature to find very few discussions of the strategic role of experimentation in

Figure 2
Blue-sky commercial model



creativity and in a comprehensive design process activity. However, examples *were* found in design education[1] (these will be discussed subsequently) and in design engineering, where the application of scientific methods to technical problem-solving was the focus.[2,3]

To create new and innovative products, systems, and solutions, designers need to find the edges. These edges exist in two different locations; I call them internal edges and frontier edges. Internal edges define the problem spaces and opportunities that have been opened up by a variety of situations. For example, the rapid pace of industrial development has left some routes unexplored, or changes in current situations suggest a re-visiting or combination of historical solutions. These situations generate internal edges. Frontier edges are those that look beyond the current supply of industrial output, and they attract more ambitious designers. Theses edges are continuously moving forward as a result of advancing technology and product outputs, although the pace of the movement is not uniform; it can accelerate during a boom and slow down or even stagnate during a period of economic downturn. Experimental design projects have a dialogue with the location of the leading industrial edge, and they seek to move beyond it, to propose new solutions that can focus and evolve technologies, markets, user expectations, and behaviors.

An interesting comparison can be made between experimental design and "blue-sky" thinking, as practiced in a commercial context (see Figure 2). Designers in the present (1) are briefed to design a future product, that goes beyond current technology, market, function, typology, or a combination of these. The result (2) is analyzed through a process of "back-casting" to establish the future date of cutting-edge markets and technologies. Pinpointing this future date is part of the original briefing and is incorporated into the second. The second design brief (3) is formulated using the outcomes to propose a new product that delivers to the cutting

1 Anthony J., Capon N., *Teaching Experimental Design Techniques to Industrial Designers*, International Journal of Engineering Education, 14:5 (1998): 335–43.

2 Anthony D. K., et al, *An Efficient Experiment Methodology to Investigate Product Design: An Acoustic Sounder Case Study*, International Conference on Managing Innovative Manufacturing, Aalborg, Denmark (2003).

3 Martin Tanco, Elisabeth Viles, Laura Ilzarbe, and Maria J Alvarez. "Manufacturing Industries Need Experiment Design (Doe)." *Proceedings of the World Congress on Engineering, Vol. II WCE 2007, July 2–4, London, U.K.* (2007).

edge of market and technology, factoring in design and development cycles. The overall aim is to deliver new products to market that maximize the criteria of market, function, technology, typology, and other specified attributes. Blue-sky projects have other valuable uses for planning the evolution of production lines, marketing, and sales channels.

Experimental design and blue-sky thinking share a similarity in pitching new concepts beyond the cutting edge of current production. The differences lie in the lower level of the initial industrial application focus for experimental projects and in the lack of a second strategic "re-briefing" stage to repurpose the results. Experimental projects can also have a pure design research motive.

Science vs. Design

Scientists and designers experiment in different ways. Scientists have been encouraged to build on one another's findings and knowledge to evolve their discipline. This goal has created an environment where experiments are necessarily peer reviewed and are required to be repeatable to be valid. Experimental design[4] ensures that a trajectory is plotted along which verification metrics can be established. Scientists know both where they are going and what they are looking for as a necessary action before they proceed. The process is convergent. Both Peter Galison and Thomas Kuhn give succinct insights into the drivers for scientific experimentation:

> In his 1962 work, *The Structure of Scientific Revolutions*, Thomas Kuhn assailed the universal adjudicating power of experiments, and therefore their independence from theory. Instead of arguing that observation must precede theory, Kuhn contended that theory has to precede observation… "As long as the celestial object later called Uranus was considered to be a star," Kuhn observes, "its motion was not noticed. Only when astronomers threw its identity in question could people 'see' it move".[5]
>
> Under normal conditions the research scientist is not an innovator but a solver of puzzles, and the puzzles upon which he concentrates are just those which he believes can be both stated and solved within the existing scientific tradition.[6]

Industrial designers, by contrast, have little motivation for their creative experiments to be reproduced because of the tendency for designers to value originality and uniqueness over reproduction of successful formulas. That designers are deliberately elliptical in their description of working methods and inspirations is widely observed. This stance has a range of reasons, one of which is to protect originality. Designers are experimenting to innovate. The problems with this approach are twofold: first, the increasing adoption

4 Peter Gallison, *How Experiments End.* (University of Chicago Press, 1987).

5 Ibid.

6 Thomas S. Kuhn, *The Structure of Scientific Revolutions*, (University of Chicago Press, 1962).

of design on a wider stage[7] has increased the density and size of problem types that designers encounter. Second, the convergent model of design, required by industry, focuses on near term design issues and discourages the investigation of more fundamental output. In contrast to the Thomas Kuhn quote relating to scientists, I would argue that designers need to begin solving problems that lie outside of their tradition.

Scientific experiments comprise a number of stages, from hypothesis or theory to experiment design, equipment, data, analysis, and conclusion, in a regular, linear format. In contrast, industrial design creative experimentation begins with a motivation that can be captured via a hypothesis but rarely captures the rigor and definition of the scientific equivalent. Experimental industrial design stages could be presented as: hypothesis, experimental phases, navigation, data interpretation, and exploitation of findings, often running in parallel. Designers use a variety of experimental tools that vary from abstract associations through to more controlled processes; such processes might include abstraction, abduction, subduction, concept generation, brainstorming, free association, and de Bono's six hats.[8] In practice, experimental tools are deployed for a number of reasons, either as a planned phase of procedure or to solve unexpected problems that arise. Because of design's commercial operation, design processes interface with the commercial world and require phases and conclusions that can be timed and valued, either directly or indirectly. Industrial design is therefore largely practiced as a convergent rationalized process that plugs into experimentation as required.

Comparing the scientific desire for complete experimental control,[9] achieved by being able to adjust variables for optimal results, with design experimentation, where it could be argued that variables are often "soft" and beyond useful calculation,[10] shows that the two methods are again operating from opposite perspectives. Design experimentation, it can be argued, relies on experiential and innate abilities in combination with the variables, which can be usefully calculated in the pursuit of innovation. In other words, two parallel streams of processing combine for decision-making: the *empirical*, composed of technical, testable, proven data, alongside the *lateral*, which allows the unexpected and abstract thinking that combines findings into new forms. Both are essential structures for successful experimental design, and it is the care and construction of these inter-relating elements that leads to the creation of impressive outcomes. If design can be summarized as "thinking to make," then craft may be summarized as "making to think." Experimental design processes can move fluidly between making activities to allow the release of thoughts on the one hand and rational calculation of ideas to be tested by making on the other. The interplay between innate response and conscious calculation generates the critical balance that allows for the progression to new discoveries. In design, lack

7 Bruno Latour. "A Cautious Prometheus? A Few Steps Towards a Philosophy of Design (With Special Attention to Peter Sloterdijk)." *Keynote Lecture for the Networks of Design meeting of the Design History Society, Falmouth, Cornwall, 3rd September 2008, Sciences-Po* (2008).

8 Edward DeBono. "Six Hats Thinking." In *Six Thinking Hats*. (Boston, MA: Little, Brown and Co.,1985).

9 Ronald A. Fisher, *Statistical Methods for Research Workers*. (Edinburgh: Oliver & Boyd, 1925).

10 Donald T Campbell and Julian C. Stanley. "Experimental and Quasi-Experimental Design for Research." In *Experimental and Quasi-Experimental Design for Research*. (Houghton, Mifflin & Company, 1963).

of complete experimental control (in the scientific sense) is not only to be expected, but is to be desired. The lack of control brings into play other coping strategies that organically lead to innovative combinations, insights, and synthesis. An argument could be made that original design research is problematic because of the heavily applied nature of the discipline. This author has interpreted original design research as that which seeks to explore and extend fundamental questions of industrial design without the focus, drive, or motivation of user-inspired scenarios.

Scientific experimental design often seeks to average over noise and inconsistent data in order to give a reliable and safe result. For example, the Bayesian theory[11] of averaging over a sample space describes such an approach. Scientific experimentation therefore seeks to eliminate inconsistency whereas industrial design often looks towards the inconsistencies, aberrations, and other outlier characteristics to exploit through lateral, non-linear, and other creative processes. In design experimentation, therefore, the inconsistencies and unexpected findings are what often lead to innovation—a kind of "sensitive *exploitation* of initial conditions," to repurpose the chaos theory mantra.[12]

Pedagogic Model

A review of pedagogic design experimentation literature uncovers some interesting examples of an experimental studio based on digital and analog processes and the teaching of experimental design techniques to industrial designers.[13] Mathews and Temple focus on recursive iterations of creation and visualization in digital and physical media and the relationship to students' creative processes. This sophisticated method explores the alternate digital versus physical creative process model and finds both similarity and parallel design thinking. Anthony and Capon, by contrast, introduce scientific experimentation techniques to industrial design students through the construction of paper helicopters and use empirical

11 Kathryn Chaloner and I. Verdinelli. "Bayesian Experimental Design: A Review." *Statistical Science: Institute of Mathematical Statistics* 10:3 (1995): 273–304.

12 R. L. Devaney, *An Introduction to Chaotic Dynamical Systems*. (USA: Addison-Wesley, 1989).

13 Anthony J., Capon N., *Teaching Experimental Design Techniques to Industrial Designers*, International Journal of Engineering Education, 14:5 (1998): 335–43 .

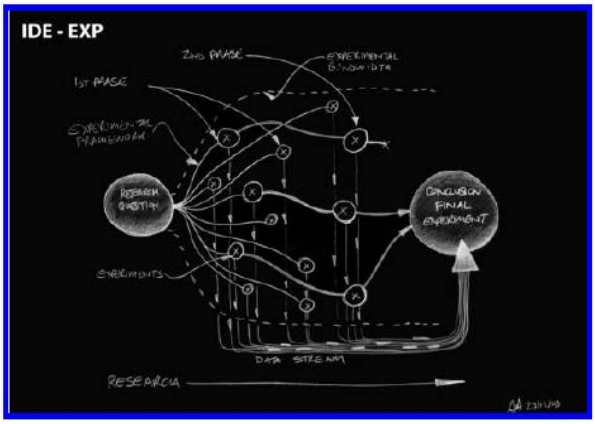


Figure 3
Experimental design meta-model

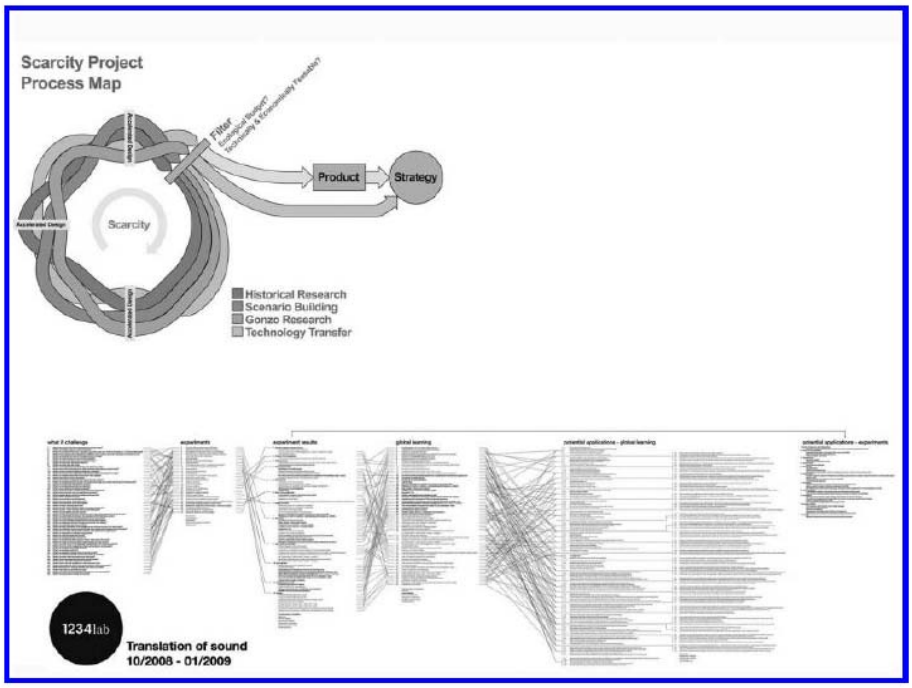


Figure 4
Experimental process mapping structure, Scarcity and 1234lab

scientific data to record and analyze the results. Contrasting these papers demonstrates the breadth of experimental design potential in design education, although, again, it was not possible to source research dedicated to the positioning of experimental design as a comprehensive industrial design activity.

A new experimental pedagogic meta-model has been developed for the Royal College of Art & Imperial College London's Innovation Design Engineering (IDE) dual masters degree program.[14] A diagram visualizing the model is proposed (by the author) in Figure 3. It treats the entire design process as experimental and is based on equal parts of research, science, and design methods. The process aims to balance the experimental breadth suggested via a hypothesis or research question to an initial range of experiments. The method treats an initial hypothesis as a description of the bandwidth or spectrum across which an initial set of experiments is used to explore the breadth of the proposal. Subsequent phases of experimentation develop and expand the findings of the previous phases with reference to the hypothesis. A final conclusion can vary from an exposition of the experiments and results discovered along the way to a final concluding experiment that sums the initial findings. During the entire process, a stream of data is captured that allows analysis of the results of each phase of the experiments and builds to the final conclusion. This model is in contrast to the conventional industrial design model, which emphasizes straight-to-market suitability. Outputs from this process have attracted investors, who

14 Ashley Hall and Peter Childs. "Innovation Design Engineering: Non-Linear Progressive Education for Diverse Intakes." *International Conference on Engineering and Product Design Education, September 10–11, University of Brighton, UK* (2009).

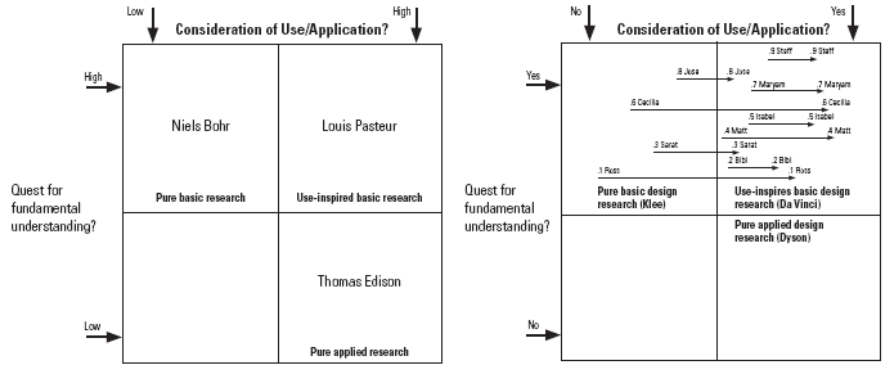


Figure 5
Pasteur's quadrant and experimental design trajectory

have funded second-stage feasibility and commercialization, with a view toward industrial production. It repurposes experimentation as an entire industrial design process rather than as selective elements within it.

The process mapping from two IDE group projects in Figure 4 demonstrates the capacity of the model to cope with both linear and non-linear[15] design processes for experimentation. The 1234lab group developed an experimental model based on noise that began by asking a series of "what if…?" questions; these questions were then filtered and further developed a number of times in an iterative reductive model until a final set of three main experiments were carried out at the project conclusion. In contrast, the Scarcity group developed a multi-layered cross-connected model that allowed experimental narratives to be informed by a sophisticated relationship of project aims and inputs in a non-linear format.

Figure 5 shows a diagram, created by this author, that compares Pasteur's quadrant of scientific research[16,17] to the level of abstraction and application in postgraduate experimental design projects. Pasteur's quadrant separates scientific research into four quadrants, based on the relationship between the quest for fundamental knowledge and considerations of use. Niels Bohr and Thomas Edison occupy the pure and applied research zones, while Louis Pasteur, having both applied and pure motivations and outputs, occupies the middle area. The fourth quadrant, representing no quest for understanding and no consideration for use, is empty.

The diagram in Figure 5 uses the same experimental basis as developed by Stokes but superimposes design research experimentation. The Bauhaus master Paul Klee exemplifies pure basic design research, with use-inspired basic design research exemplified by Leonardo Da Vinci and pure applied design shown by James Dyson. Student projects were mapped onto the quadrant depending on the trajectory shift from basic to applied design research during the evolution of the project. Observe that four students (1, 3, 6, 8)

15 Ashley Hall, "Context and Cohabitation of Linear and Non-Linear Systems in Design." *International Association of Societies of Design Research Conference, Seoul, Korea* (2009).

16 Donald E. Stokes, "Completing the Bush Model." In *Pasteur's Quadrant*. Basic Science and Technological Innovation ed. (Washington, DC: Brookings Institution Press, 1997).

17 H. Borgdorff, "Artistic Research and Pasteur's Quadrant." *GRAY Magazine, Gerrit Rietveld Academy, Amsterdam, Netherlands*, Issue 3 - Special Artistic Research (2007): 12–17.

Figure 6
Ross Atkin, Entropy Machine

began with an abstract, "pure basic design" hypothesis, where an eventual application was unclear or missing. Another five began their experiments in the "use-inspired" quadrant and gravitated toward the pure applied. The trajectories are created via a comparison of whether the hypothesis describes a pure basic design focus or user-inspired basic research. The ends of the trajectories measure the distance moved toward an industrial application. Pure applied design research (blank quadrant) is conducted via the design-for-manufacture learning strand on the IDE course and is not considered here. In the scientific model and literature descriptions, patterns of operation appear to be confined within one of the three occupied Pasteur quadrants. To an extent, this observation might be expected because of the tendency of industrial designers to be application led or application seeking, even when investigating fundamental questions.

The process adopted for the pedagogic experimental design model comprises elements of scientific, research, and design methods. Scientific methods are adopted for the rigor of detailing outputs and designing and conducting individual experiments. Elements of research methods are used in the construction of a hypothesis or research question and in the continual comparison of findings, as well as in a significant project report detailing all the phases of work and the narrative trajectory leading to the final conclusions. Design methods come into play via the selection of experimental ranges and creative interpretation of results to move the exploration forward.

Case Studies

A selection of three case studies described here shows the results from the pedagogic experimental design model. The projects were all individual postgraduate work undertaken over a five-month period on the Innovation Design Engineering Experimental Design strand in 2009 and exhibited at the Royal College of Art summer show the same year.

Case study 5.1. Ross Atkin's "Entropy Machine" is inspired by the second law of thermodynamics and the way nature "gets around it."[18, 19, 20] The aim of the experimentation was to physically simulate chaotic natural phenomena and the manner in which they can give rise to ordered structures (at a scale easily comprehended by viewers). The showpiece uses a rotating sphere with uneven inner surface and a number of geometrically "programmed" solids with mating surfaces. As the sphere is spun quickly, the solids disperse

18 P. W. Atkins (no relation), *The Second Law.* Arcadia ed. (London, UK: Samuel French, 1993).

19 I. Prigogine and I. Stengers. *Order Out of Chaos: Man's New Dialogue with Nature.* (London: Heinemann, 1994).

20 A. G. Cairns-Smith, *The Life Puzzle: On Crystals and Organisms and on the Possibility of a Crystal As An Ancestor.* (Edinburgh: Oliver & Boyd, 1971).

Figure 7
Matt Johnson, Symptoms of the Self

into single units around the circumference, mixing together. A second slower cycle engages, during which the solids agglomerate into discrete clusters of similar type, effectively un-mixing. Various iterations of forms, tumblers, rotation speeds and cycles, and mating notes were tested. Future uses include self-assembling products and self-sorting packaging for recycling or reuse.

Case study 5.2. "Symptoms of the self" (see Figure 7) by Matt Johnson investigates proprioception and body schema[21, 22, 23] in an experiment to uncover new ways for the mind to map the functions of the human body. Based on leading-edge psychology research, a machine was constructed in which a pair of gloves worn by a user maps three-dimensional movement in a sensor glove that transmits an equal force to a second driver glove worn by the second user. The resultant effect questions the mind's image of the body schema by ceding control of the hand to another user. The effect can be further reinforced by programming a delay or a reverse to the driven hands, thereby challenging the psychological conception of body composition, relationship, and function. Future applications beyond the questioning of body schema include the learning of "expert" dexterity required by a musician or for craftsmanship.

Case study 5.3. Sarat Babu's "Microkinetics" (see Figure 8) explores micro-level structures[24, 25] embedded in a matrix that produces physical characteristics outside of the expectations of their three-dimensional forms. A combination of selective laser addition (SLA) rapid prototyping and cast polyurethane and silicon allowed the creation of an "alphabet" of micro functions, as illustrated in Figure 8. The image on the left shows the alphabet samples while the image in the middle shows a hexagonal section that swells in the center when twisted in one direction and shrinks when rotated in the other. The image on the right shows a structure that deforms resulting in two even bulges on one side of the surface when the ends are pulled evenly. The experimental output has applications to a wide range of intelligent dynamic structures at the macro and molecular level.

Conclusion

An exploration of the structural differences between scientific and design experimental activity has shown considerable differences of

21 V. S. Ramachandran, D. C. Rogers, and S. Cobb, "Touching the Phantom." *Nature*, 377 (1995): 489–90.

22 S. Blakeslee and V. S. Ramachandran, *Phantoms in the Brain*. (London, UK: Harper Perennial, 1998).

23 M. MacLachlan, D. McDonald, and J. Waloch, "Mirror Treatment of Lower Limb Phantom Pain: A Case Study." *Disability & Rehabilitation* 26 (14–15) (2004): 901-4.

24 S. Hanna and H. Mahdavi, "Modularity and Flexibility at the Small Scale: Evolving Continuous Material Variation with Stereolithography." *University of Waterloo School of Architecture Press, Toronto, Canada* (2004).

25 S. Hannah and H. Mahdavi Siavash, *An Evolutionary Approach to Microstructure Optimizations of Stereolithographic Models*. Proceedings of CEC2003, 2003.

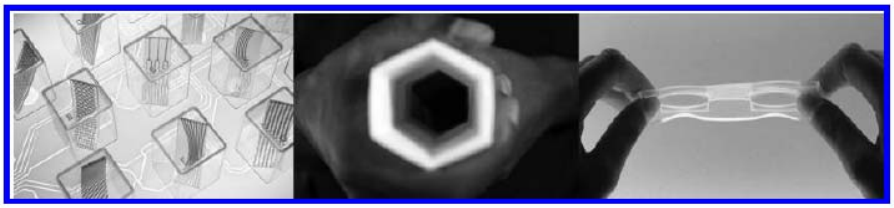


Figure 8
Sarat Babu, Microkinetics

outlook, motivation, and methods. In many ways, these findings demonstrate strong contrasts and in some instances polar opposites in terms of operation. The proposed new model for complete experimentation as an industrial design activity—including design, research, and science methods—aims to answer the increasing movement of designs into earlier and more fundamental stages of product and technology formulation. Only time will tell whether this trend continues and whether the model developed becomes part of this activity. Case studies from the experimental pedagogic model illustrate the breadth of potential investigations—from materials exploration, to the interface between psychology and body image, to the re-application of fundamental laws as creative tools. The outputs show signs of fundamental design innovations after following a whole design process model. Although the Experimental Design strand of the IDE masters is still in its early days, the number of projects being commercialized from it through business incubation centers, as well as the angel funding these projects are attracting, demonstrate some successes.

Visual Wellbeing: Intersections of Rhetorical Theory and Design

Victoria J. Gallagher, Kelly Norris Martin, Magdy Ma

In her recent book *Classical Rhetoric and the Visual Arts in Early Modern Europe*, Caroline van Eck argues that classical rhetoric influenced both the producers and consumers of visual art and architecture in early modern Europe through concepts related to vivid representation. Indeed, according to van Eck, both oral communication and image making share the goal of establishing vivid representation (or enargeia). In addition, she argues that both rhetoric and the visual arts work "to bring to life that which is absent." Building upon her work and also following the work of Buchanan (2001) and Kaufer & Butler (1996), we suggest that an even stronger argument can be made for the interrelatedness of rhetoric and the visual arts, particularly in the field of design. In this paper, we speak from within two intellectual traditions—rhetoric and visual design—that have developed separately. Despite this separation, we argue that what emerged as two distinct fields of study are intricately related, as reflected in their assumptions, goals, and functions. For instance, scholars in design and rhetoric define their practices and objects of study similarly. In addition, they have similar values and goals particularly related to the possibility of changing an imperfect situation and instigating a level of social consciousness. Furthermore, both fields work toward human advancement in both functional and moral senses (Figure 1).

Indeed, Twyman[1] and Bonsiepe,[2] both of whom write from a design perspective, argue that ancient rhetoric resembles modern design because both arts deal with functional, contextual, and social aspects of language and symbol systems and thus are well suited to design issues. In their book, *Rhetoric and the Art of Design*, Kaufer and Butler suggest that rhetoric belongs to the family of design arts, like architecture and graphics, because all of these arts are arts of production.[3] They conclude that theories of rhetoric are theories of design. Meanwhile, Ehses, a design educator, argues that rhetorical theory is relevant for information design because of the applicability of the three operational functions of rhetoric—to instruct, to move, to please—to the nature of design.[4]

Twyman and Bonsiepe also argue that ancient rhetoric did in fact consider, and therefore address, the visual. Gronbeck,

1 Michael Twyman, "Criteria for education in 'schrift and leser,'" in *Typographic* [USA], 11:3 (1979). Twyman is a historian of typography and professor emeritus at the University of Reading at Berkshire.

2 Gui Bonsiepe, "Visual/verbal/rhetoric," in *Ulm*, 14 (1965): 23–40. Bonsiepe is one of the leading theorists in Design.

3 Kaufer and Butler, *Rhetoric and the Arts of Design* (Mahwah, NJ: Lawrence Erlbaum Associates, 1996).

4 Hanno Ehses, "Rhetoric and Design," in *Design Papers 5: Rhetorical Handbook*, E. Lupton, ed. (Halifax: Novia Scotia College of Art and Design, 1988).

Figure 1
Comparison of Design and Rhetoric.

DESIGN	RHETORIC
"Design is devising actions that are aimed at changing existing situations into preferred ones"[10] "Design…is defined as the area of human experience, skill, and understanding that reflects man's concern with the appreciation and adaption of his surroundings in the light of his material and spiritual needs"[11]	"Rhetoric responds to imperfect situations which are capable of positive modification by rhetorical actions"[12] "Rhetoric is… a process that inheres in all discursive practices and that influences social consciousness at every level of its manifestation"[13]
Values or goals: Achieving the functional, the pleasurable, and the moral—the three senses of good[14] Accomplishing human beings' individual and collective purposes[15] Power of conceiving, planning, and making[16]	**Values or goals:** To enlighten the understanding, please the imagination, move the passions, influence the will[17] Means of self-discovery or to come to self-knowledge[18] A force for civilization and human advancement[19]

writing from the rhetorical perspective, agrees, arguing that the ancient world was fascinated with sight and seeing.[5] In particular, Aristotle's treatise on memory illustrates this fascination. According to Gronbeck, Aristotle argued that "humans use *phantasmata*, mental images or pictures, in the construction of memory."[6] Steffensmeier, also writing from a rhetorical perspective, suggests that a re-reading of Aristotle's *Rhetoric* reveals the centrality of the visual to his theory of rhetoric, particularly in the canon of memoria: "For instance, the handbook tradition's treatment of memory relies heavily on visualization, as do key parts of the rhetorical paideia exemplified by the progrymnasmata."[7]

Despite scholarship that suggests a strong thread of what Gronbeck refers to as ocularcentrism in the rhetorical tradition, rhetoric's commitment to the visual did not become the focus of scholarly work until the latter decades of the twentieth century. Many scholars credit the work of Kenneth Burke as essential to the re-introduction of the visual into the study of rhetoric, particularly his definition of rhetoric as the use of symbols to persuade creatures who by nature respond to symbols.[8] Burke argues that all human symbol use (whether visual or not) is "symbolic action" characterized by motive and, therefore, that it may be analyzed in rhetorical terms. The field of rhetoric expanded to include within its purview not only literature and speech but also "culture, art, and even science."[9]

By the last third of the twentieth century, visual theorists were beginning to assert a "pictorial turn" in intellectual and social life (or the "iconic turn," per Gottfried Boehm). Mitchell made the distinction between the pictorial turn as a mass perception—a collective anxiety about images and visual media—and the turn to images in intellectual disciplines not only in the human sciences but

5 Bruce Gronbeck, "Celluloid rhetoric: On genres of documentary," in *Form and Genre: Shaping Rhetorical Action*, K. K. Cambell & K. H. Jamieson, eds. (Falls Church, VA: Speech Communication Association, 1978): 139–61.

6 Olson, Finnegan, and Hope, *Visual Rhetoric: A Reader in Communication and American Culture*. (Los Angeles: Sage, 2008).

7 Tim Steffensmeier, "Aristotle's Energeia and Grain Farming: Adding Value by Bringing a Community 'Before the Eyes,'" in *NCA Annual Convention* (2005): 5.

8 Kenneth Burke, *Grammar of Motives* (New York: Prentice Hall, 1945). Kenneth Burke, *A Rhetoric of Motives* (Englewood Cliffs, NJ: Prentice Hall, 1950). Also, Kenneth Burke, *Language as Symbolic Action* (Berkeley: University of California Press, 1966). Also, Kenneth Burke, *The Philosophy of Literary Forms: Studies in Symbolic Action* (Baton Rouge: Louisiana State University Press, 1967).

9 Kenney and Scott, "A Review of the Visual Rhetoric Literature" in *Persuasive Imagery: A Consumer Response*, Linda M. Scott and Rajeev Batra, eds. (Mahwah, NJ: Lawrence Erlbaum Associates, 2003): 17–56.

10 Herbert Simon, *The Sciences of the Artificial*. (Cambridge, MA: MIT Press, 1996).

11 Bruce Archer, "Design as a Discipline," in *Design Studies*, 1:1 (1979): 17–20.

12 Lloyd Bitzer, "The Rhetorical Situation," in Philosophy and Rhetoric, 1:1 (1968), 1–14.

13 Michael Leff, "Hermeneutical Rhetoric" in *Rhetoric and Hermeneutics in Our Time: A Reader*. Walter Jost and Michael J. Hyde, eds. (1997): 196–214.

14 David Sless, "Reading Semiotics," in *Information Design Journal* 4:3 (1986):179–89. Also, Kirt Wilson, "Is There Interest in Reconciliation?" *in Rhetoric Public Affairs, 7:3 (2004), 367–77.*

15 Richard Buchanan, "Design Research and the New Learning," in *Design Issues*, 17:4 (2001), 3–23.

16 Ibid.

also in the natural sciences (e.g., medicine, biology, physics, natural history, etc.).[20] As Mitchell was trying to make connections between the increasing amount of visual-related scholarship in philosophy, social theory, and the visual arts, he noted, significantly, that the pictorial turn was characterized by its "rhetorical dimensions."[21] Such dimensions included the efforts both to understand pictures as a form of communication and to recognize audiences' reception of the images as conditioned by their personal experience and culture. Like semiotics and other related approaches to the visual, a rhetorical approach considers images as rational expressions of cultural meaning and examines the relationship between images and text. However, visual rhetoric also adds the element of invention, wherein the interpretive insights of the critic result in enhanced sources of invention for both practitioners and theorists. This move is significant for visual designers because invention is an element essential to the work of design practitioners.

The comparison between rhetoric and design can be taken further. For instance, rhetoric is both an *art* and a *practice*: it is an *art* to the extent that there are principles of rhetoric that may be learned, that there are means for assessing/evaluating it, and that we see it as a separate area of human activity that we can observe and upon which we can reflect. It is a *practice* to the extent that we engage in the creation of rhetoric in both our public and our everyday discourses through the exchange of symbols. Similarly, design is both an *art* and a *practice*. It is an *art* because it, too, has a set of principles that can be taught and learned, because there are established means for assessing/evaluating it, and because it is a separate area of human activity that we can observe and upon which we can reflect. It is a *practice* to the extent that designers and others participate in it by designing visual and material artifacts/objects.

Despite these similarities, there are differences worth noting. Rhetoric is a bit more democratized as a practice than the practice of design: while there are certainly individuals who are more skilled in the art of rhetoric and there is a long tradition of instruction in rhetoric, all individuals are understood as being able to produce or engage in rhetoric. Historically, design as a practice has been understood as a bit more restricted to "experts" or "designers" than to the public at large. (However, as our analysis demonstrates, design is being reconceptualized in the twenty-first century as much more democratic, based at least in part on the digital technology revolution and the increasing popularity of audience-centered approaches. Service design, for example, is a collaborative process where the designer researches and plans through multiple interactions with the customer.)

In addition, rhetorical education tends to have a dual focus on both theory and skill development, whereas design education historically has been weighted more heavily toward skill development.[22] This distinction is directly related to the generation

17 George Campbell, *The Philosophy of Rhetoric*. (Boston, MA: Adamant Media Corporation, 1849).

18 Sonja Foss, *Rhetorical Criticism: Exploration and Practice, 3rd Edition*. (Long Grove, IL: Waveland Press, 2004).

19 James Jasinski, *Sourcebook on rhetoric: Key Concepts in Contemporary Rhetorical Studies. (Thousand Oaks, CA: Sage Publications, Inc., 2001).*

20 Grønstad and Vågnes, "An Interview with W.J.T. Mitchell" (2006). Accessed 2/8/2009, from http://www.imagean-dnarrative.be/iconoclasm/gronstad_vagnes.htm.

21 Olson, Finnegan, and Hope, *Visual Rhetoric*.

22 Davies and Reid, "Uncovering Problematics in Design Education—Learning and the Design Entity," in *Re-Inventing Design Education in the University: Proceedings of the International Conference*, C. Swann & E. Young, eds. (Perth: School of Design, Curtin University, 2001): 178–84. Also, Donald Schön, *Educating the Reflective Practitioner* (San Francisco, CA: Jossey-Bass Inc., 1987). Also, R. E. Weiss, "Designing Problems to Promote Higher-Order Thinking," in *Problem-Based Learning in the Information Age*, D. S. Knowlton and D. C. Sharp, eds., (2003): 25–31.

of new knowledge in the two fields. Rhetorical scholars generate new knowledge by engaging in rhetorical criticism and philosophical inquiry, as well as through practice. For designers, new knowledge is generally achieved through practice; in particular, insights are gained through the creative or inventional process. Designers often distinguish their knowledge and research from that of scientists and social scientists by pointing out their lack of interest in testable theories. While designers do have theories, these theories do not have to be tested empirically to be considered well-established programs or manifestos. In other words, design theories are often only "testable" in relation to practice, to professional acceptance, and to longevity.[23]

It is the purpose of this paper, then, to demonstrate that where rhetorical theory intersects with visual design studies, it creates opportunities for invention and generates analytic power to illuminate meanings and evaluate visual phenomenon. Particularly, rhetorical theory provides historical concepts and constructs that speak to the realm of visual practices in unique and important ways, exploring transcendent and universalistic assumptions about aesthetics and human wellbeing within the limits of situated human experience and creativity. We begin with a discussion of two ancient rhetorical concepts that, we argue, provide important insight for rhetorical scholars and visual designers. We then move to the development of an overarching critical framework that we refer to as *visual wellbeing* and apply that framework to several different types of visual design projects to illustrate its critical and practical potential. We conclude with a discussion of the implications of this work.

Rhetoric and the Visual: Key Concepts

Enargeia/Enargia (Vividness)

Enargeia (*enargia*) is a historical concept in rhetorical theory that has received little attention from contemporary scholars in either design or rhetoric. This concept is one aspect of classical rhetorical theory that stresses the similarity of painting or the visual arts to rhetoric because it refers to the author's ability to (re)create a vivid description, or to present evidence so that it seems to appear before the eyes of the audience. It combines all of the possibilities suggested by such terms as "graphic," "active," and "representing actuality."[24] As Cicero explains, *enargeia* does not seem to speak but to show. It involves visual clarity, immediacy, self-evidentia, and strong emotional appeal.[25] In Aristotle's theory of tragedy, only a vivid image (*enargeia*) was able to evoke contrary emotions of empathy or terror.[26]

A term often referenced in conjunction, and sometimes conflated, with enargeia is energeia (energia). However, energia refers to the energy, movement, efficiency, or force of an expression and is not necessarily visual. Although enargeia is inherently visual,

23 Gary Moore, "Toward Environment: Behavior Theories of the Middle Range," in *Advances in Environment, Behavior, and Design: Toward the Integration of Theory, Methods, Research, and Utilization*, G. Moore and R. W. Marans, eds. (1997): 1–40.

24 W. J. Jordan, "A Psychological Explanation of Aristotle's Concept of Metaphor," in Dissertation, Wayne State University, 29, (1969).

25 Ingunn Lunde, "Rhetorical Enargeia and Linguistic Pragmatics," in *Journal of Historical Pragmatics*, 5:1 (2004): 49–80.

26 Thijs Weststeijn, "Rembrandt and Rhetoric: the Concepts of Affectus, Enargeia, and Ornatus in Samuel Van Hoogstraten's Judgement of his Master" in *The Learned Eye: Regarding Art, Theory, and the Artist's Reputation*, M. van den Doel, N. van Eck, G. Korevaar, A. Tummers, and T. Westseijn, eds. (2005): 111–32.

Figure 2
Enargeia.

Characteristics of Enargeia (vividness)
Brings in to presence, to the sight and mind, that which is absent[36]
Full, exhaustive, vivid, visual depiction of experience[37]
Conveys invisible significance through visual depiction[38]
Gives pleasure to the viewer[39]
Persuasive capacity related to ideas[40]
Evokes a sense of wonder[41]
Combines theatrical description with authentic account[42]

recent studies using methods of visual rhetoric have not referred to enargeia (or energia), with the exception of Finnegan, who references "enargia" in a footnote explanation of her use of "ekphrasis," a subcategory of enargeia.[27] Occasionally, literary criticism and dissertations will use enargeia to inform their analyses.[28] From these works, we can play out a series of features or elements that may reside in or be evoked by visual images (Figures 1 and 2).

As this survey indicates, enargeia's *oculos subiectio* (to bring before one's eyes) is not an end in and of itself; rather, it is a means to achieve an end. Visual experience of design objects and images in the world may be distressful or pleasurable—one might feel confronted with "visual pollution"[29] or one might experience some moments of "pleasurable looking" that are not tied to consumption. In institutions and public spaces, such as public parks or museums, the source of visual pleasure (or distress) could be not just the art works and paintings, sculptures, and interactive displays, but also the environment, its ambience, or the atmosphere. As indicated earlier, in both design and rhetoric, a fundamental end or goal is the good and/or the pleasurable. In rhetorical theory, there is a strong emphasis on the good as being a communal experience, enacted via symbolic exchanges where a congruence of values is achieved.

Eudaimonia (Flourishment)

Eudaimonia[30] is a rhetorical concept that originated in Aristotle's thinking about wellbeing, pleasure, and happiness. Aristotle conceptualizes true happiness as *fulfillment* of a deep nature, as opposed to merely pleasurable sensations, and as the *expression of virtue*.[31] Waterman suggests that eudaimonia involves *personal expressiveness* of *deeply held values*.[32] Significantly, the Aristotelian tradition theorizes the term wellbeing as essentially social and ethical in its inflections.[33] Eudaimonic wellbeing, then, is the experience of *enriching activities*, of *vitality*, in people who live in groups[34]—a condition for *human flourishing*.[35]

The relevance of eudaimonia as a component concept in a theory of visual wellbeing is motivated by the relationship it indicates between pleasure and wellbeing, which is distinct from the individualistic, hedonistic depictions of visual pleasure in other

27 Cara Finnegan, "Doing Rhetorical History of the Visual: The Photograph and the Archive," in *Defining Visual Rhetoric*, M. Helmers and C. Hill, eds., (Mahwah, NJ: Lawrence Erlbaum, 2004): 195–214.

28 A related concept, energeia, has a received a bit more attention. Energeia is defined as bringing before the eye, as making visible to a community.

29 Ezio Manzini, "Prometheus of the Everyday: The Ecology of the Artificial and the Designer's Responsibility," in *Discovering Design: Explorations in Design Studies*, R. Buchanan and V. Margolin, eds. (Chicago: The University of Chicago Press, 1995).

30 A characterization of eudaimonic wellbeing is based on interpretation in psychology and social studies literature.

31 Ryan and Deci, "On Happiness and Human Potentials: a Review of Research on Hedonic and Eudaimonic Well-Being," in *Annual Review of Psychology* 52 (2001): 146.

32 Ibid., 146.

33 Des Gasper, *Human Well-Being: Concepts and Conceptualizations* (United Nations University: World Institute for Development Economics Research, 2004): 3.

34 Kashdan and Julian, "Gratitude and Hedonic and Eudaimonic Wellbeing in Vietnam War Veterans," in *Behavior Research and Therapy*, (2005).

35 Aristotle, as cited in Kashdan, 2005.

36 Ingunn Lunde, "Rhetorical Enargeia and Linguistic Pragmatics," in *Journal of Historical Pragmatics*, 5:1 (2004): 53.

37 Ibid., 54.

38 Ibid.

39 Gerard Sharpling, "Towards a Rhetoric of Experience: the Role of Enargeia in the Essays of Montaigne," in Rhetorica, 20:2 (2002): 174.

40 Ibid., 175.

41 Ibid.

42 Ibid.

contemporary critical theories of images. Whereas hedonic theories of pleasure related to visual images emphasize *bodily pleasure* and *self-interest*,[43] a eudaimonic theory of visual wellbeing focuses on *meanings* and *self-realization* and is *"inherently culturally rooted."*[44] The emphasis on culture and meaning substantiates visual images and artifacts, along with verbal forms, as possible vehicles for promoting wellbeing of a eudaimonic nature because cultural meanings are created and sustained rhetorically and are central to contemporary visual communication.

In short, eudaimonic pleasure evokes human wellbeing. Based on the idea that wellbeing, "the optimal psychological functioning and experience,"[45] can be manifested in any specific life domain, we argue that visual-based wellbeing[46] is a possible human condition and that visual experience is an important life domain. We seek to demonstrate how the articulation of visual wellbeing—as a positive consequence or goal of visual design, as well as a critical/theoretical framework rooted in the rhetorical tradition—can inform the work of designers and critics and thus contribute to the knowledge base of both disciplines.

Visual Wellbeing

Visual wellbeing is defined as the state of feeling healthy, happy, and content, of sensing vitality and prosperity, recognized precisely in one's experience of objects through the visual sense. It refers to a kind of "pleasurable looking" that is different from, and therefore able to account for the limitations of, the looking associated with *visual pleasure*; such looking has been theorized primarily through such concepts as *scopophilia*[47] and *gaze*[48] to describe the kinds of pleasures related to *voyeurism*, *fetishism*, and *narcissism*.[49] Visual pleasure, theorized in this manner, is hedonic, somewhat momentary, "controlling and even sadistic."[50] As a result, this body of theory is limited in its ability to illuminate diverse circumstances and audiences, characterized by different power relationships and purposes, in and for which looking can be a source of pleasure. As suggested above, people also experience visual pleasure that sustains them, that involves intersubjectivity and conscious experience. Thus, there is a need to examine how visuals might work to promote *eudaimonic pleasure*.

We suggest that a concept of visual wellbeing can be formulated using rhetorical concepts of *enargeia* (energy, vividness) (Figure 2) and *eudaimonia* (human wellbeing) (Figure 3), supplemented by basic rhetorical concepts of cooperation/influence/persuasion (the general purposes of rhetoric) and exigence (a problem or gap, marked by some urgency, that calls forth rhetoric). The latter concepts provide insight into the process and context favorable to the realization of visual wellbeing.

We apply this framework to two brief case studies to illustrate its theoretical, critical, and practical potential. The two cases

43 Ryan and Deci, "On Happiness and Human Potentials," 145.

44 Christopher, as cited in Ryan and Deci, 2001, 159.

45 Ryan and Deci, "On Happiness and Human Potentials," 141–66.

46 Product-based and access-based wellbeing, instead of visual-based wellbeing, dominate discussion of the idea of wellbeing in design studies (Manzini, *Design Philosophy paper*, 2003).

47 Scophophilia is the translated concept of Freud's reference to "Schaulust" from "The Origin and Development of Psychoanalysis," from the fourth lecture, first published in *American Journal of Psychology*, 21, 181–218 (1910).

48 Jacques Lacan, *The Seminar, Book XI. The Four Fundamental Concepts of Psychoanalysis, 1964*. Trans. Alan Sheridan, (London: Hogarth Press and Institute of Psycho-Analysis, 1977). Here, Lacan refers to Sartre's "the look."

49 Laura Mulvey, "Visual Pleasure and Narrative Cinema" in *Screen* 16 (1975): 6–18. 1975.

50 Laura Mulvey. *Visual and Other Pleasures*. (Bloomington: Indiana University Press, 1989).

Figure 3
Eudaimonia.

Characteristics of Eudaimonia (wellbeing)
Expression of virtue
Enriching activities, of vitality, in people who live in groups
Personal expressiveness of deeply held values
Fulfillment
A condition for human flourishing
Inherently culturally rooted
Focuses on meanings and self-realization

represent points on a continuum that ranges from more explicitly aesthetic to more explicitly persuasive in nature. In this way, the projects focus attention on the question of universal versus situated notions of vividness and wellbeing, pleasure and human flourishing. Our analysis problematizes universal notions by demonstrating the situated character of both projects. The first case study examines the artwork of Andy Goldsworthy, particularly as presented in the 2001 film, *Rivers and Tides*. Goldsworthy is described variously as a nature artist, a sculptor, a photographer, and an environmentalist. He produces two types of work: "(1) ephemeral explorations, which he generally documents in photographs, and (2) 'larger works,' which he defines as 'environmental sculptures,' 'temporary installations,' and 'permanent monuments.'"[51] The second case study examines several works of public art in Hong Kong public housing estates, part of a larger program initiated by the Hong Kong Housing Authority. This initiative features purposeful environmental alterations intended for social improvement in an urban setting.

Visual Wellbeing as a Critical Framework

Case 1: Rivers and Tides

Just as the artist finishes arranging icicles in a swirling pattern around a jagged rock, the sun rises over a cliff to brightly illuminate the sculpture (Image 1). The moment is vivid, breathtaking, dazzling, but as the artist points out, "the very thing that brought it [the sculpture] to life will cause its death."

This is one of the opening scenes in the 2001 film, *Rivers and Tides*, a film shot by German filmmaker Thomas Riedelsheimer, who followed the artist, Andy Goldsworthy, for over a year. Produced by Skyline Productions, the film took top prizes in Germany's Lola film awards, as well as in several international festivals.[52]

The film follows Goldsworthy—a soft-spoken, bearded man creating sculptures that illustrate the cycles of creation and change—throughout his professional travels. Goldsworthy works without paint brushes, chisels, knives, or canvases and yet brings into being highly inventive sculptures from the artifacts and materials he finds in his surroundings.

51 Thomas Reese, "Andy Goldsworthy's New Ruins," in *Mortality Immortality?: The Legacy of 20th-Century Art*, M. A. Corzo, ed. (Los Angeles: Getty Conservation Institute, 1999): 25–34.

52 J. Latimer, "ARTS ABROAD: in a Film Festival's Winners, a Focus on Artists at Work," in *The New York Times* (October 1, 2002): 2.

Image 1
Ice Sculpture.

In terms of the elements of enargeia and eudemonia (Figures 2 and 3), what is of interest to us is the way in which Goldsworthy's art, as represented in *Rivers and Tides*, appears to be a quite thoroughgoing illustration of these concepts. Certainly, the art is mediated by the techniques and practices of filmmaking, but it is the art and its emphemeral, time-based creation and evolution that is the object of our analysis. Goldsworthy's artwork as depicted in almost every scene *brings into sight and mind that which is absent*—namely, constructed forms in nature and natural forms in human experience. All of the art and art-making shown throughout the film evokes elements of *pleasure*, an *authentic account* of the relationship between nature and human beings, and a *sense of wonder*. For instance, in one of his most simple projects, Goldsworthy meanders around his small hometown gathering dandelion blossoms as he reflects on the relationship between rootedness and change. He then carefully arranges the dandelions in a field so that they appear before the eye of the viewer as a *vivid* circular pattern of bright yellow, contrasting sharply with the green field. This series of scenes is just one example by which the film displays more fully, even than photographs of Goldsworthy's work, an *exhaustive, visual depiction of experience*. Instead of seeing only the final image of color and contrast, viewers receive, from the filmmaker, scenes which cover the entire experience, so that they come to understand how the slow, mundane acts of searching, picking, and arranging are necessary to create the final sense of *pleasure* and *wonder*. The art-making practice captured in the film enables viewers to experience vicariously the painstaking patience necessary to arrange the flowers, leaving them with the memory of how this vivid, visual feast was created out of the most simple and natural materials and forms—an apparently truly *authentic account*. Because audience members have come along for the journey, the sense of aesthetic contrivance is lost, and instead they share Goldsworthy's aesthetic vision as if they were enacting it with him.

Image 2
Sculpture of Twigs in Penpont.

This enargeic element of *authentic account* also illuminates the distinction between gazing and looking as they are evoked in viewers. Instead of a brief hit of pleasure and then a quick look away, the viewer is actually led through a more ongoing, deeper visual experience that engages *memory*. For instance, there are scenes in the film showing Goldsworthy crumbling bits of iron rock into a river, resulting in a blood red stream, and throwing snow in the air just to watch the beauty of it as it dissipates; such images evoke memories of childhood activity and *wonder*. The contrast of electric yellow dandelions sprouting from a less-than-nurturing, grey-brown rock might indeed give the viewer pleasure—a pleasure likely to be heightened by memories of leisure *activities of vitality* often associated with childhood, such as picking wildflowers. In short, Goldsworthy's process and art, as illustrated in the film, encourage the audience toward a deeper kind of looking, thereby demonstrating characteristics of both enargeia and eudemonia.

A scene in Penpont, Scotland, like several others scattered throughout the film (especially those in Nova Scotia), illustrates the one characteristic of eudemonia that *Rivers and Tides* manages to complicate—namely, the issue of *fulfillment*. The same process that evokes a sense of *memory* and an *exhaustive depiction of experience* also creates a sense of frustration when a work created so painstakingly collapses as a final piece is added or attached. In a scene where Goldsworthy holds a sculpture of twigs to prevent its collapse, the audience begins to feel he may have saved the sculpture as the screen minutes pass by. Unfortunately, all expectations of recovery are dashed when he removes his hand and the entire sculpture breaks apart (Image 2). Viewers inwardly collapse along with Goldsworthy as he pauses in silent frustration. Only when the film continues on to other projects, indicating that Goldsworthy has detached himself from the lost work on his own terms, do viewers begin to regain their sense of *fulfillment* from the experience of being engaged in Goldsworthy's creative process. Viewers might not have experienced this sense of fulfillment as vividly without those earlier feelings of

loss. The film enables audience members to see and experience Goldsworthy's creative journey, and not just to look at or consume the end result. In this way, *Rivers and Tides* demonstrates how film (and potentially other media) can function to heighten the experience of *fulfillment*.

Case 2: Public Art in Hong Kong Housing Estates

"Public Art in Estates" is an art promotion scheme initiated by the Hong Kong Housing Authority. The Authority was established in the 1950s in response to a tragic fire that left 53,000 people homeless. In 1972, the Governor, Sir Murray MacLehose, announced a ten-year housing program to provide self-contained housing for 1.5 million people.[53] This long-term housing policy was seen as a social improvement measure, providing low-cost rental homes for a majority of the population. Today, more than half of Hong Kong's population lives in the 380 or so estates.

Typically, in the design and planning of public housing, so much stress is placed on economic feasibility, durability, and ease of maintenance that consideration of the visual appeal or quality of the residents' lived experience is often disregarded. However, in Hong Kong, as the need to provide shelters that meet spatial and utilitarian needs has been generally satisfied, attention has turned to the aesthetic attractiveness, conditions and the values considered essential to human flourishing. In recent decades, efforts have been made to improve the environment of what locals call "low-cost estates." For example, a number of site-specific sculptures, as part of the "Public Art in Estates" scheme, were commissioned in 1999 for installation in Yat Tung Estate, in a new town called Tung Chung. This new town is situated on the northern coast of a large, outlying island west of Hong Kong. In the past, a paddy field and fishing village had occupied this land, but it underwent development after the construction of a new international airport. In Hong Kong, the sheer scale of the public housing project and the experiences of residents who share a cultural memory of the monotonous uniformity and institutional look of earlier housing projects of the 1950s and 1960s create a unique rhetorical situation.

Sculptures in Yat Tung Estate adopt themes that reflect the history and cultural heritage of Tung Chung; they are designed, purportedly, in line with the needs of residents. The villagers who have been relocated to the Yat Tung Estate must deal with leaving their homes, which were small, one-story houses, to live in high-rise buildings; the relocation represents an enormous change for residents' day-to-day existence, both physically and mentally.

"Working at Dawn" and "Harvesting" (Images 3 and 4, respectively) are particularly notable in terms of enargeia, *bringing into presence that which is absent* (both to the sight and to the mind) in a way that addresses or *expresses virtue*. "Working at Dawn" features silhouettes of a farmer, ox, plow, and crops; the crops have been

53 *Hong Kong Housing Authority Annual Report, 1996–97.*

Image 3
Working at Dawn.

Image 4
Harvesting.

cut out from, and then placed on top of a dark, curved, matte steel plate, creating both positive and negative spaces. The curved plate is attached to a pedestal and also features the cut-out shapes of crops, so that the sculpture as a whole resembles a paddy field being worked by a farmer. The technical treatment of cutting out shapes creates a visual effect like that of the traditional Chinese folk art of paper-cutting. "Harvesting," meanwhile, is made of greenish bronze. It portrays members of a farmer's (or fisherman's) family holding hands, joyfully dancing as they encircle a tree of some sort.

Because Tung Chung had been a rural community where residents lived simply and in simple styles, the transformation to a modernized new town has meant the disappearance of many traditional ways of life and raises questions about what it means to be virtuous in this new environment. The figures of people working in the paddy field serve to evoke cultural heritage, potentially arousing residents' *memory*, conjuring up images in their minds of ways of life now absent. In addition to creating nostalgic attachment, the sculptures serve to provide an *expression of virtue*. *Deeply held values*, such as stratified and harmonic relationships, are visually depicted by the unbroken circle of hands among different generations of a family in "Harvesting," and in the unbroken connection between the diligent farmer and his ox as well as the unbroken connection between the farmer and his land via the visual line of the plow in "Working at Dawn." The use of the cut-out technique, while making him both visible and present, also establishes him as an imprint in the memory, an absence within presence. Just as the residents now live within greater physical proximity to cement, steel, and glass than to crops and the soil, the farmer is fabricated, literally cut from steel, a material that bespeaks the present urban landscape rather than the organic rural past. The sculpture of the farmer thus provides a way of moving from the virtues of the past into the fabric of the present.

In a manner distinctive from that of "Working at Dawn," "Harvesting" focuses attention on *meanings and self-realization* within *deeply held values* related to family and work. This work exemplifies *theatrical depiction* that is fabricated rather than authentic, since the ritual of dancing around a tree at harvest time is not recorded in local customs. Yet the treatment of the figures is realistic and therefore, apparently, representational of *enriching activities*in the past. As a result, the work functions metaphorically, providing a sense of harmonious family relationships of the past (based on working the land and, in this case, also the sea), as well as the changing family relationships in the present and future. This diachronic orientation

Figure 4
Comparison of Visual Pleasure and Visual Wellbeing.

VISUAL PLEASURE	VISUAL WELLBEING
Male gaze of female subject	Varied audiences' experience of design objects
Psychoanalysis, Psychology, Film studies, Feminist studies	Visual design, Rhetorical theory
Hedonic wellbeing	Eudaimonic wellbeing
Voyeurism, fetishism, narcissism, gaze, scopophilia	Enargeia, vividness, eudaimonia, sight
Bodily pleasure, self-interest, consumption	Meanings, sense-making, and self-realization within community
Subjectivity – individualistic	Intersubjectivity – social/cultural
Momentary	Sustained

is accomplished by the direction of the gaze and the posture of each of the figures in relation to the grouping as a whole, all of which suggest different orientations to past and present or, at least, different modes of self-realization. For residents who are experiencing instability as the result of dramatic change to their lived experience, such images may serve both to comfort and to provide models for living and relating in new spaces and contexts.[54] The level of detail of the figures, their roles, and their physical relationship both with one another and with their surroundings create a rhetoric of stability, so that they serve as an example of the persuasive capacity of images and of how they might inspire a sense of vividness through *full, exhaustive, vivid visual depiction* of experience.

"Harvesting" and "Working at Dawn" function rhetorically to remedy the "imperfection"—that which is something other than it should be—brought about by relocation; it does so through the creation and evocation of meanings that influence residents' perceptions about their reality. Visual design makes values visible and, as a result, becomes a means for altering the "defective" nature of the environment by communicating ideas and ideals to the community. The sculptures depict past experience or historical heritage with positive connotations, bringing into presence that which is absent; they inventively represent community development, forming and reinforcing the basis upon which residents might develop a sense of individual *self-realization* and cultural sustainability. Here, then, identifying and interpreting characteristics of visual wellbeing within the sculptures provides a means for better understanding the rhetorical situation, as well as a means for evaluating how the resulting exigence is addressed via design practice.

Contributions

Analysis of these case studies indicates two primary contributions that a theory of visual wellbeing offers to both rhetorical scholars and designers of visual artifacts. First, characteristics of enargeia and eudaimonia, as outlined in the framework developed here (Figures 2 and 3), provide distinct criteria for analyzing and assessing artifacts and design objects, such as Goldsworthy's artwork as illustrated in the film and the public art sculptures in Hong Kong. These criteria recognize the centrality to human existence of meanings and self-realization that are culturally and socially rooted rather than rooted in either universalistic aesthetic principles or in the body/self. Figure 4 further demonstrates the distinctiveness of these criteria by contrasting conceptualizations of visual pleasure as presented in the scholarly literature with the rhetorical conceptualization of visual wellbeing articulated here.

Second, analysis of these cases using the visual wellbeing framework indicates that artists and designers—those who seek to create visual objects that are meaningful and significant to the

54 Interviews with residents in 2006 suggested that they had understood the sculptures largely in sentimental ways. Interpretations of the visuals were centered on personal, emotional feelings rather than practical concerns. For example, an elderly man who had been a farmer in Southern rural China expressed his responses to the vivid, realistic sculpture "Harvesting," using terms such as "rootedness and family loyalty." He also indicated that "solidarity and harmony within family is a Chinese virtue," values which he taught his grandchildren using "Harvesting" as a visual model.

viewers and residents—can be rhetorically successful by providing objects that employ the constituent concepts of visual wellbeing. For instance, analyses of the two cases demonstrate that each met various design goals: achieving a vivid depiction of art in nature (in Goldworthy's art works and the film *Rivers and Tides*); and providing resources for making values visible and, as a result, addressing the "defective" nature of the environment by communicating ideas and ideals to the community (in the Hong Kong estate art). Thus, our work demonstrates the inventional possibilities of applying this type of framework to the design process.

In terms of implications for future research and practice, the theory of visual wellbeing and the components of enargeia and eudemonia as discussed and applied here give designers another set of tools to aid them in their process of investigating, developing, and eventually analyzing the final outcomes of a design challenge—especially one that is rooted in self-realization or culture as opposed to bodily pleasure and self-interest. One possible set of design projects that could benefit from the theory of visual wellbeing is in hospital environments. Although studies have shown that attractive physical surroundings are very important to a patient's health, little guidance is available to help in making design decisions.[55] When studies are conducted to formulate these answers, the components of both enargeia and eudemonia could be considered in the research design, as well as in the evaluation following the implementation of findings.

Changing the visual ambience of healthcare environments is an example of the type of design challenge that future research in visual wellbeing might address. Sustainable design, designing for democracy or civic participation, and questions of emotion and design are other potential areas of research that deal with the betterment or fulfillment of individuals or the cultural community and that would also benefit from further development and application of the visual wellbeing framework.

55 H. Dalke, J. Little, E. Niemann, N. Camgoz, G. Steadman, S. Hill, and L. Stott. "Colour and Lighting in Hospital Design," *Optics & Laser Technology*, 38 (4–6), 343–65.

'Scandinavian Design' as Discourse: The Exhibition *Design in Scandinavia*, 1954–57

Jørn Guldberg

Lecture delivered to the London College of Communication at the event, "The Limits of Design: Designing for Security and Sustainable Development," November 11, 2009

In his review in *Interiors* of the traveling exhibition of Scandinavian arts and crafts and industrial design, *Design in Scandinavia*, Edgar Kaufmann, Jr., head of the design department at the Museum of Modern Art in New York (MOMA), expressed a favorable appraisal of the show as a whole.[1] Like other commentators, Kaufmann stressed the importance to Americans of this exhibition and anticipated that "… a Scandinavian vogue will again flourish over here."[2] But, unlike most critics and reviewers, he eventually addressed the physical qualities of the objects on display, such as the tables, screens, and show cases that constituted Danish architect and industrial designer Erik Herlöw's highly flexible installation design. The fixtures were themselves manifestations of the "taste and skill" that the exhibited items featured, Kaufmann stated, and he continued: "Erik Herlöw's cases, tables, platforms, and lights not only provide an admirable setting; they are the key to what is good in American eyes about Northern design generally. Clean, well-finished, unobtrusive, carefully considered, ingenious, sensible and elegant."[3]

The question is, however, whether the attributes Kaufmann cited actually concern things and their objective qualities. Being "carefully considered" and "well-finished" refers to a given object as a product; that is, the qualities are evidence of human invention, planning, and manufacture. The other attributes—clean, unobtrusive, ingenious, sensible, and elegant—may refer to properties of things, but even more, they apply to human beings. Consider their appropriateness in describing the appearance of a well-dressed, polite, and sociable individual.

With his account, Kaufmann exemplifies one of the core problematics of the *Design in Scandinavia* show: ambivalence in regard to the actual object of criticism and evaluation, which is characteristic of most texts related to the exhibition. Thus, the general question to be raised and qualified in this article is how the meaning of the label, "Scandinavian Design," was construed within the context of this particular exhibition. The attempt to provide an answer entails a further question about the semantic choices in relation to various writers' identification of the Scandinavianness of Scandinavian things. Finally, the most delicate question is whether the charac-

1 Edgar Kaufmann, Jr., "Scandinavian Design in the U.S.A.," *Interiors*, May 1954, 108–14, 182–5.

2 Kaufmann, op. cit., 108.

3 *loc. cit.*

Figure 1
The front of the Virginia Museum of Fine Arts, Richmond, January 1954 (Svensk Form, Stockholm)

teristics attributed to "Scandinavian Design" apply to things or to people. Do they account for physical and functional qualities of things, or should they more likely be understood as an American projection of desirable social and psychological characteristics?

The objective of this article is to throw light on the construction of "Scandinavian Design" as discourse. After a brief, general presentation of *Design in Scandinavia* as an exhibitionary complex and event, I discuss three in some detail: the main text of the exhibition catalog, written by Gotthard Johansson, president of the Swedish Arts & Crafts Society, an article in the *New York Times Sunday Magazine* by Leslie Cheek, Jr., director of Virginia Museum of Fine Arts, and finally, Kaufmann's review in *Interiors* and its contribution to the discourse of "Scandinavianism."

"Design in Scandinavia" as an Event

The exhibition, *Design in Scandinavia* (DiS), was shown at 24 locations in the United States and Canada during the years 1954 to 1957. In the U.S., it was prepared by the staff at Virginia Museum of Fine Arts (VMFA) in Richmond, VA, under the directorship of Leslie Cheek, Jr. Cheek wrote a brief introduction to the exhibition catalog, in addition to the previously mentioned programmatic article in the *New York Times Sunday Magazine* in June 1954, in which he compared American design traditions to contemporary Scandinavian material culture.[4]

The initiative for the exhibition seems to have been taken by one American, Elizabeth Gordon, then editor-in-chief of *House Beautiful*. In fact, the oldest document relating to the matter and filed as such in the archives is a letter from Gordon to Mac Lindahl at the Swedish American News Exchange's office in Stockholm.[5] Formally, DiS was organized as a joint enterprise by the national associations of craft, applied art, and design in Denmark, Finland, Norway, and Sweden and the American Federation of Arts. Cheek functioned as an enthusiastic middleman between the parties.

The exhibition opened at VMFA in Richmond on January 15, 1954 (Figure 1), and the doors were closed behind the last visitors to the show in Indianapolis on May 19, 1957.[6] The total number of visitors was about 660,000, and in all cases (except four or five) the exhibition broke all local records in attracting visitors to temporary exhibitions. In each place, the exhibition was open to the public for about four weeks. Information on the whole sequence was compiled in a table in the official exhibition report from 1958 (Figure 2).

Two publications were issued in connection with the exhibition. A catalog, *Design in Scandinavia*, listed the designers and manufacturers actually taking part in the touring exhibition, and a *Directory of Arts and Crafts Resources in Denmark, Finland, Norway, Sweden* included information on a wider selection of artists, designers, and manufacturers, as well as on their representatives in the United States.[7]

4 Leslie Cheek, Jr., "Do Americans Have Good Taste?," *New York Times Sunday Magazine*, June 6, 1954.

5 Letter from Elizabeth Gordon to Mac Lindahl, dated October 19, 1951, Library of Virginia, Richmond, Archive of the Virginia Museum of Fine Arts, Box B1072801: Directors Office Correspondence, 1933–1977, Folder: "Design in Scandinavia."

6 The exhibition visited 22 other places (in order of appearance): Baltimore (Museum of Arts); Brooklyn (Brooklyn Museum); Hartfort, CT (Wadsworth Atheneum); Manchester, NH (Currier Gallery of Art); Cleveland (Cleveland Museum of Art); Toronto (Royal Ontario Museum of Archaeology); Ottawa (National Gallery of Canada); Pittsburgh, PA (Carnegie Institute); Toledo, OH (Toledo Museum of Art); Detroit (Detroit Institute of Arts); Minneapolis (Institute of Art); Omaha (Joslyn Memorial Art Museum); Kansas City (William Rockhill Nelson Gallery); Colorado Springs, Cal. (Fine Arts Center); Houston, TX (Museum of Fine Arts); Dayton, OH (Dayton Art Institute); Chicago (Art Institute); Seattle, WA (Seattle Art Museum); Vancouver (Art Gallery); Portland, OR (Art Museum); San Francisco (Museum of Art); Los Angeles (County Museum); and finally, Indianapolis (John Herron Art Institute).

Figure 2
Table of the Design in Scandinavia exhibition sequence; places, institutions, terms and number of visitors (From the report, *Design in Scandinavia*, Stockholm, 1958).

1954			**Visitors**
Richmond, Va.	Virginia Museum of Fine Arts	15/1 —14/2	9.955
Baltimore, Md.	Museum of Art	1/3 —30/3	22.454
Brooklyn, N. Y.	Brooklyn Museum	11/4 —16/5	66.224
Hartford, Conn.	Wadsworth Ateneum	1/6 —30/6	6.228
Manchester, N. H.	Currier Gallery of Art	16/7 —14/8	4.740
Cleveland, Ohio	Museum of Art	1/9 —30/9	57.055
Toronto, Canada	Royal Ontario Museum of Archaeology	19/10—14/11	9.000
1955			
Ottawa, Canada	National Gallery of Canada	1/1 —30/1	15.000
Pittsburg, Pa.	Carnegie Institute	16/2 —14/3	29.570
Toledo, Ohio	Museum of Art	1/4 —30/4	16.000
Detroit, Mich.	Institute of Arts	16/5 —14/6	30.000
Minneapolis, Minn.	Institute of Arts	1/7 —30/7	18.650
Omaha, Neb.	Joslyn Art Museum	16/9 —14/10	9.725
Kansas City, Mo.	William Rockhill Nelson Gallery	11/11—30/11	19.433
1956			
Colorado Springs, Col.	Fine Arts Center	1/1 —31/1	9.604
Houston, Texas	Museum of Fine Arts	16/2 —14/3	16.650
Dayton, Ohio	Art Institute	1/4 —30/4	25.617
Chicago, Ill.	Art Institute	16/5 —14/7	95.325
Seattle, Wash.	Art Museum	16/8 —14/9	30.744
Vancouver, B. C.	Art Gallery	1/10—30/10	18.850
Portland, Oregon	Art Museum	16/11—14/12	15.000
1957			
San Francisco, Cal.	Museum of Art	8/1 —15/2	22.369
Los Angeles, Cal.	County Museum	20/2 —20/3	99.871
Indianapolis, Ind.	John Herron Art Institute	15/4 —19/5	10.000

The exhibition was physically organized in four theme sections under the following headings: (1) "Good Articles for Everyday Use" (inexpensive household goods, such as furniture, glass, cutlery, tableware, and textiles (Figure 3)); (2) "Living Tradition" (contemporary handicraft and domestic industry (Figure 4)); (3) "Form and Material" (exclusive arts and crafts in ceramics, glass, and metal work (Figure 5)); and (4) "Scandinavia at Home" (furniture, textiles, and lighting in combination with photos of houses and interiors (Figure 6)). An introductory section included huge landscape photos, as well as line-image prints with ornamental renderings of objects (Figure 7).

In general, the exhibition became an event. It was featured as such in journals and magazines and so covered by the press. In addition to news coverage, several newspapers published features on Scandinavian culture and society, and radio and television stations produced shows and talks devoted to the exhibition. Concerts featuring music by Scandinavian composers were broadcasted, and excerpts of Scandinavian literature were recited on radio programs. Most of the host museums and institutions arranged public lectures, showed films, and developed special programs for schools and colleges.[8]

7 The information given in the catalog, in transportation registers, and in installation lists allows for some (rude) statistics relating to the exhibition. About 240 individual artists and designers were represented with one item or (in rare cases) a small series of designs. The representation of the participating designers as regards nationality was roughly as follows: Denmark: 80; Finland: 40; Norway: 55; Sweden: 65. The products that were displayed at the 24 exhibitions represented about 150 manufacturers, but in many cases, the designer was also the producer. In other words, a considerable part of the manufacturers were operating on a one-man business basis, or the manufacturers were small companies.

8 In Chicago, for instance, the public relations program was heavy; a folder was distributed in 50,000 copies through libraries, schools, and commercial organizations. In addition, 3,000 posters were placed throughout the city. A lecture series including eight talks was co-sponsored by the Art Institute, the University of Chicago, and the Chicago Chapter of the American-Scandinavian Foundation. The lecture series included talks by, among others, Edgar Kaufmann, John van Koert, Meyric R. Rogers (the Art Institute's department of decorative arts), and John E. Brown. In many places "Scandinavian Weeks" and, for example, a "Norwegian Day" were proclaimed.

Figure 3
View of the section; "Good Articles for Everyday Use," Virginia Museum of Fine Arts, Richmond (Riksarkivet, Oslo)

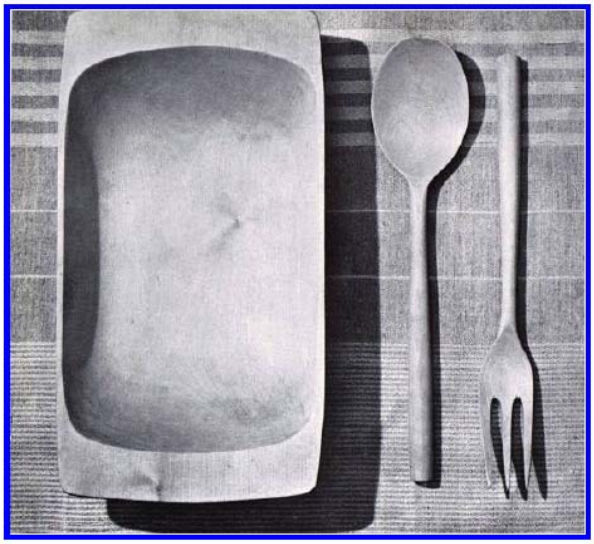


Figure 4
Examples from the section; "Living Tradition," Norwegian wood carving (From the catalogue *Design in Scandinavia*)

Figure 5
View of the section; "Form and Material," Virginia Museum of Fine Arts, Richmond (Svensk Form, Stockholm)

Figure 6
View of the section. "Scandinavia at Home," Virginia Museum of Fine Arts, Richmond (Svensk Form, Stockholm)

Figure 7
View of the exhibitions entrance with landscape photos and in-line photo prints, Museum of Art, San Francisco (Riksarkivet, Oslo)

DiS: A Journalistic Project?

How did the idea of DiS emerge in the first place? The organizing process following the decision concerning the realization of the idea of an exhibition was rather conventional and formal (i.e., committees were formed, objects selected, competitions on exhibition logo were arranged, and so on), but the less formal and more chaotic process began with an intense exchange of rival ideas and gives some indications of the spirit in which the exhibition was conceived. One may speak of a particular tendency of the dominant discourse at that stage. As mentioned, the idea first came to Elizabeth Gordon. In her capacity as a magazine editor, she "discovered" Scandinavian design at the 1951 Milan Triennale. According to the archive material, Gordon first discussed her idea with the Swede, Elias Svedberg, in-house designer and public relations officer with Nordiska Kompagniet in Stockholm, and H.O. Gummerus, spokesman for the Finnish company Wärtsila (the Arabia potteries in Helsinki). Next, Gordon turned to "an old friend of mine," as she told Lindahl in her letter of October 1951.[9] This "old friend" was the director of the VMFA, Leslie Cheek, Jr., whom she had known at least since 1946, when he worked as the architecture editor at *House Beautiful*. Thus, Cheek was not only "an old friend" but also a former member of the journalistic staff at Gordon's magazine. The next person to get involved was Mac Lindahl from the Swedish-American news agency. Having received Gordon's letter, Lindahl approached three Swedish journalists and correspondents to engage them.[10]

As director of an art museum, Leslie Cheek seems to represent an exception to the professional profile of this group. He graduated from the Yale School of Architecture in 1935 and afterward was engaged as a lecturer in art history at the College of William & Mary in Williamsburg, VA. The following year, he managed to establish a department of art history with a library and exhibition facilities at the college. He became the head of the department,

9 Letter from Elizabeth Gordon to Mac Lindahl of October 19, 1951, see note 5.

10 They were: (1) a British-born architect and journalist, G. Howard Smith, who was working as a correspondent with the Boston paper, *Christian Science Monitor*, and an American news syndicate, (2) a Swedish sculptor, Thyra Lundgren, who for many years had reported on Swedish design for French and Italian home magazines, and finally (3) the editor of the Swedish magazine *Hem i Sverige* (Homes in Sweden), Ulla Molin, whom Lindahl characterizes as "one of the sharpest brains in this country when it comes to Swedish design" (letter from Lindahl to Gordon, November 6, 1951 (see note 3)). It should be noted that *Hem i Sverige* was a popular magazine with no formal connection to the Swedish Arts & Crafts Society. The official journal of this body was *Form*.

Figure 8
"Finnish lake and forest scenery," "Finland's thousand lakes and vast forests," both from the catalogues

and his famed exhibition there in 1938 of drawings and models by Frank Lloyd Wright paved the way for his museum career. Cheek's appointment as director of the Baltimore Museum of Art followed in 1939. After the War, and until his appointment to the VMFA in 1949, he worked with the editorial boards of *Architectural Forum* and *House Beautiful*. Two so-called picture biographies of Cheek leave the reader with an impression of a museum administrator who favored "settings" for the presentation of art works and who liked to engage audiences both intellectually and physically (the latter by means of an almost choreographic staging of the visitor's passage through the galleries).[11]

A strong "communicative" urge seems to have been a most dominant characteristic of Cheek as an outstanding museum personality. His professional, educational background did not include art or design history as academic disciplines. Many of the exhibition environments he (and his staffs) created through the years were conceived as spectacles, and the shows were presented as events with distinct "messages." Maybe, then, Cheek's approach was *not* that different in the end, in that it could function as an alternative to the way the group of press officers saw the future exhibition. The point is that the whole group (Cheek included) *thought* and *acted* professionally as they were accustomed to; that is, they all considered the presentation of Scandinavian design as a matter whose actuality and relevance had to be legitimated and marketed to the general public as an event. Both Gordon and Cheek actually saw DiS as a *historical* event with great news value in a journalistic sense. For example, after her return from a study trip to Africa in early 1952, Gordon wrote a short note to Cheek, stating: "Having examined the artistic and design cultures of Kenya and South Africa, I am more than ever convinced that the Scandinavian contribution to our times is THE contribution of this era—and something should be done to dramatize its position in the world today."[12] With its potential tribalization of Scandinavian design culture, this statement adds, in a curious way, to the ambiguity of both the expectations in connection with the exhibition and the idea of the "message" it was believed to communicate. Emphasizing Scandinavian design as an alternative to African ethnographica—even Gordon's idea of making such a bold comparison—seems out of step with the authors of the texts to be examined below in the next section. They carefully sought to impede any attribution of exoticism to Scandinavian design.

Maybe Gordon's favorable statement on Scandinavian design should be seen against another background, then. In the years around 1950, Gordon was promoting the idea of an authentic, American material or design culture and lifestyle in the pages of *House Beautiful*. Home, family, closeness to nature, hiking in the landscape, and, for instance, the use of natural materials became ideals associated with an American way of life.[13] In the context of her project, Gordon was impressed by the quality and elegance

11 *Living by Design. Leslie Cheek and the Arts*. A Photobiography by Parke Rouse, Jr., (Williamsburg, The Society of the Alumni of The College of William and Mary, 1986), and *Designing for the Arts. Environments by Leslie Cheek*. A Photo Essay with Text by K. Richmond Temple, (Williamsburg, The Society of the Alumni of The College of William and Mary, 1990).

12 Letter from Gordon to Cheek of February 17, 1952, see note 5.

13 Monica Penick, "Marketing Modernism: *House Beautiful* and the Station Wagon Way of Life," paper to the Design History Society Conference, Hatfield, England, September 2009, unpublished. In her account of (the Finnish contribution) to DiS, Hilde Hawkins also focuses on Gordon's preoccupation with a recovery of genuine American values; see Hilde Hawkins, "Finding a Place in a New World Order: Finland, America, and the 'Design in Scandinavia' exhibition," Marianne Aav and Nina Stritzler-Levine (eds.), *Finnish Modern Design*, (New Haven, Yale University Press, 1998), 244f.

of Scandinavian craft and design at the 1951 Triennale and—so it seems—simply decided that Scandinavian objects could serve as models for the way of life she idealized.

The initial expectations in relation to the coming "American show" among the representatives of the four Scandinavian professional societies varied. Only a few examples are given here, and they are confined to the very first reactions to the prospect of an upcoming exhibition in the United States. The Finns wanted to handle their participation as a continuation of their massive and rather successful promotion of Finnish design.[14] The board of the Norwegian organization reacted by entering in the minute book "that the task now is to clear up the meaning of the notion of design."[15] In a presidential address to the members of the Swedish society, Åke Huldt foresaw prosperity and an increased turnover for Swedish firms and products on the American market.[16] And finally, one member of the board of the Danish society wanted comments, such as "the importance of showing the differences in the design cultures of the Nordic countries," to be noted in the minute book, while another member wanted to stress "aesthetic differences."[17] In other words, from the outset there were very different agendas.

Scandinavian Design as Scandinavian Text

The president of the Swedish organization, *Svenska Slöjdföreningen*, wrote the official introduction to *Design in Scandinavia*.[18] Gotthard Johansson's task was to provide background information that would enable an identification of the specific qualities of craft and design from the four Scandinavian countries. This discourse established an identification of the structure, shape, and performativity of artifacts by making pleas for their rootedness in tradition, their natural conditioning, and their communitarian and egalitarian affordances. Much of the myth of Scandinavian design is due to such traditional, naturalistic, and "democratistic" conceptions. They might also explain why most texts concerned with the characteristics of Scandinavian design are, in fact, narratives about people rather than things.

Johansson's catalog text, then, is about Scandinavians and their histories, landscapes, and nation building. The editorial perspective on the text was, of course, that the introduction should serve readers who were demanding background information about common characteristics of the Nordic design cultures, as well as about the qualities that distinguished the individual features of each country. Consequently, the text was written with an explicit intention of producing a favorable and coherent picture of what was presented and represented in the exhibition, and, at the same time, a picture that would appeal to an American readership. There are several indications of how the author was anxious to meet the presumed expectations of American readers. The cultural attaché at the Swedish embassy in Washington DC, art historian Mårten Liljegreen, advised

14 Hawkins *op. cit.*, 236–39.

15 Report of the board meeting, December 4, 1952; the archive of Foreningen Brukskunst (Arts and Crafts Society), Riksarkivet, Oslo, Arkiv PA 895, A5 (1A310).

16 Åke Huldt's memorandum to the members of the Swedish Arts & Crafts Society of December 17, 1952: the archive of Svensk Form (Swedish Form), Center för Näringslivshistoria, Bromma (Stockholm), Arkiv F 3B: 6.

17 Report of a meeting in the executive committee of Landsforeningen Dansk Kunsthåndværk (The Danish Arts & Crafts Society) June 1952, Erhvervsarkivet, Aarhus, Arkiv LDK A 133/4B.

18 Gotthard Johansson, "Design in Scandinavia," Arne Remlov (ed.), *Design in Scandinavia*, Exhibition Catalog, (Stavanger, 1954), 11–20.

Åke Huldt, the director of the Swedish Arts & Crafts Society, to supervise closely both the writing of the introductory text and the way the objects for the exhibition were photographed so that he might adjust the pictorial presentation to the rhetoric characteristic of American visual culture. Liljegreen even suggested that Huldt engage a particular Swedish photographer, Sune Sundahl, who he said knew how to make "Americanesque" pictures. The care taken in producing the "right" text by the people involved is evidenced by the number of handwritten notes and drafts, of typewritten manuscript versions in Swedish and English, and of proofs of the texts at various stages.[19]

The very concept of the exhibition forced Johansson to mobilize all his rhetorical skills to construe an argument about Scandinavian unity. His strategy was to show a unique Scandinavian capacity to bridge opposites, such as shared Nordic values and national differences, solidarity and individual cause, past and present, living tradition and modernity, home industry and mass production. He did so by insisting on *continuity* and *contiguity* in all cases. Accordingly, what the text construed was a discourse of absence—the absence of polarities, dramatic changes, demographic and cultural differences, and segregation within the product cultures and so on.

The first issue addressed by Johansson was that of contiguity: namely, the geographical and political closeness of the four countries. He wanted readers to conclude that the unity of the Nordic countries was a characteristic of great importance, and that this closeness was reflected in the exhibition, which stood out as a unit, too. He even emphasized that this unity had never before been as strong as it was by the mid-1950s. However, both in historical and contemporary terms, this unity is questionable. The history of Scandinavia is characterized by centuries of warfare and territorial confrontations, occupancies, and struggles for independence. Johansson referred the history back to the Viking Age, and in his depiction of subsequent centuries "war, country against country" was replaced by "fraternal strife" in the catalog text.[20] In both instances, he mentioned the sword as the instrument of warfare—an anachronism that served to mythologize or at least minimize the seriousness of conflict. Another question is what kind of political unity could actually be pointed to in the mid-1950s. Of course, the Nordic Council had been established as recently as 1952, and this event was obviously reflected in Johansson's declaration of Nordic unity. However, this forum of inter-parliamentary exchange soon faded out and became an organ for the promotion and service of cultural relationships and, for instance, the annual award of a literary prize. The NATO alliance was established in 1949, and while Denmark and Norway were among the founding members, Sweden *would not* join, and Finland *could not* because of the geo-political situation in post-war northern Europe and the cold war.[21]

19 All notes and manuscripts are kept in the archive of Svensk Form, Archive F 3B, various folders in boxes 8–10.

20 All quotations are from the exhibition catalog or the drafts in the Swedish archive.

21 Finland eventually agreed to enter a so-called partnership with NATO in 1994 (i.e., after the cold war), but full membership has not been obtained.

The next question Johansson addressed was that of diversity among individual nations within the Nordic unit. Here, he turned to nature and landscape, and his reflections on cultural diversity were illustrated by photos of landscapes, one from each country (Figures 9–12). Visitors and readers of the catalog were presented not with landscapes that showed contemporary industrial plants or landscapes of an urbanized modernity (see Figure 7). Instead, the Finnish landscape was without explicit references to the presence of humans; furthermore, it was seen from a bird's eye view, which, in the photographic media, turns landscape into a flat ornament. The Norwegian landscape was a remote, faraway, archaic idyll, while the Swedish one was characterized by its picturesque setting, showing a clearing and a typical farmhouse in the middle of forests and groves. The Danish landscape, meanwhile, stood out as cultured. The scenery was observed from a position on the tiny relic of uncultivated soil in the foreground, whereas the vista was dominated by a view of what environmental and agricultural historians call "the economy landscape:" the landscape of possessions, enclosure, and the right to cultivate the parcels.

The photos represent four quite different statements about the natural/agricultural environment of designed artifacts. Immediately after his topographical characteristics (see the quotes in the captions to the figures), Johansson mentioned the traditions of folk art that he related to the places of living and to the economic necessity of self-sufficiency. He described the geographical conditions as being contingent, yet eventually accounting for Northerners' specific "sense of form and material, their standards of quality, and their manual skill." This folk tradition lives on today, he said,

> …in Norway wood-carving is a well established national craft, in Sweden and Finland the art of weaving has been proudly handed down from generation to generation, while Danish pottery still draws its inspiration from the past.[22]

The argument concerning the endurance of home arts traditions, however, forced Johansson to maintain that "Scandinavian design of today is not to be regarded as an ethnographic curiosity." Johansson wanted to stress the continuity with the past, but at the same time, he also emphasized that Scandinavian designers had readily adapted themselves to the needs of the modern consumer and the general requirements of the modern age. Consequently, Scandinavian things "are created for the people of today, people who live under conditions which are essentially much the same as those of the average American."

This last statement might be read as just another example of how stress on continuity can be used as a rhetorical device. What Johansson said was that the form of objects reflecting age-old Scandinavian customs might appeal directly to the average American. Why? His reasoning was that *the* special characteristic of

22 Gotthard Johansson, op. cit., 12.

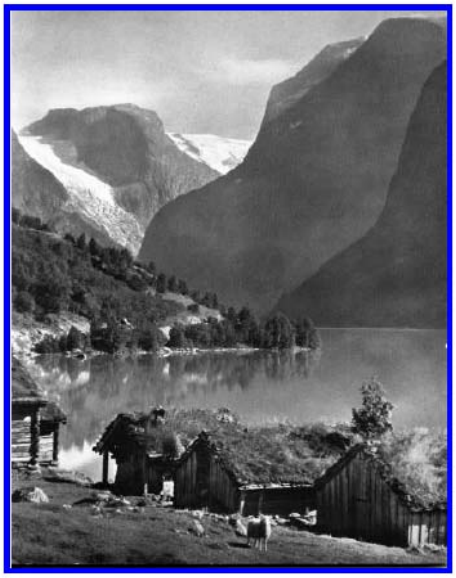


Figure 9 (top left)
Norwegian fjord, "Norways high mountains and deep fjords," both from the catalogues

Figure 10 (top right)
From central Sweden, "Sweden's birch coppices and interplay of valley and mountain, land and water," both from the catalogue

Figure 11 (bottom left)
Typical Danish farmland, "Denmark's green fields, trim farms and rolling heath," both from the catalogues

Scandinavia and Scandinavian design was "the intense interest in everyday problems and everyday things." This interest in design for everyday use, Johansson continued, placed the common "man," family, and home in the center. In addition, the democratic outlook, the social conscience, and the striving for a high general standard of living were forces that together generated *common* things—things that did not function as status symbols and that were unaffected by short-lived fashions and idiosyncrasies.

In this connection, Johansson also referred to socio-economic conditions that supported this argument of the everydayness, ordinariness, commonness of Scandinavia, the Scandinavians, and their things. Thus, he postulated an intimate relationship between designer, producer, and consumer and underlined the homogenous character of the population. Furthermore, Johansson claimed that the Scandinavian mentality seemed to break down the usual conflict of interests between designer and producer, producer and consumer, because all shared a common interest in good-looking and well-functioning things. The homogeneity of the populace, as well as the small differences in economic resources, was also a guarantee of social and cultural continuity and coherence.

Most importantly, Johansson underlined the special characteristic of Scandinavian design culture by drawing attention to the existence of organizations whose aim was to unite designers, producers, entrepreneurs, industrialists, art and cultural critics, philosophers, and art historians in a single body. The Arts & Crafts Societies in Scandinavia were among the oldest in the world, and this long-term history meant that the effects of their activities had been considerable.[23] Their educational, research, and promotion initiatives had been of great importance to the spread of the ideal of "good design." In no other place was it possible to see the same objects for use both in public (and semi-public) places and in private homes—yet another manifestation of continuity.

Of equal importance was the "Scandinavian way" in which manufacturers engaged designers or artists. (Johansson referred to the most reknowned examples, such as Swedish potteries and glass-works (e.g., Gustavsberg, Orrefors, etc.), but he could have mentioned examples from all four countries: Arabia in Helsinki, Royal Copenhagen in Denmark, or Porsgrund in Norway.) More than elsewhere, a characteristic of the Scandinavian design tradition, he claimed, was the unique long-term employment of artists as in-house designers. Their job was to develop models and prototypes for assembly line production; yet, at the same time, they were provided a studio where they could carry out sophisticated experiments and have an artistic production in private. Of course, it is difficult to evaluate the exact effect of such arrangements, but they underline what Johansson, among many, considered to be one of the most conspicuous aspects of the continuity issue: the continuity between individual artistic production of unique objects and mass (or at least

23 The Swedish society (in an international context, the oldest of its kind) was established in 1845, the Finnish in 1888, the Danish in 1908, and the Norwegian in 1918.

serial) production for the mass consumer and thus the *general* high quality of industrial products from Scandinavia.

Thus, one reading of Johansson's catalog text might lead to the conclusion that there are no real or dramatic gaps in Scandinavian politics, household economy, demography, history, artistic traditions, or material culture. However, Johansson said absolutely nothing about Scandinavian things and their qualities as concrete, physical entities to be touched, moved around, and used by humans.

"Scandinavian Design" as an American Text

A sequence of texts written by or attributed to Leslie Cheek of the Virginia Museum reflects many of the statements in the catalog introduction. The communicative rhetoric used in the American text(s) is different from the one used by Johansson, but the interesting commonality is a shared effort of both texts to appeal to Americans. The two are discourses of identity, sameness, and otherness. They are not general accounts of the characteristics of Scandinavian design objects, but discourses yielding a "Scandinavianism"—a notion to be discussed more deeply in the final section.

The Cheek article was published on June 6, 1954, in the *New York Times Sunday Magazine*. Two drafts exist—one dated December 28, 1953, another dated February 8, 1954.[24] The first draft from December 1953, with the title, "Taste: America vs. Scandinavia," is the only one actually written by Cheek. The second, "Taste at Home," from February 1954, is a rewrite by his wife, Mary Tyler, a journalist by training. The final and published version, "Do Americans Have Good Taste?," was a rewrite by the culture editor of the NYT *Sunday Magazine*, Lewis Bergmann.

The original text, the first draft, was explicitly yet politely criticized by the editor of the *Sunday Magazine*, Lester Merkel. He found it too critical of the taste of Americans and simply refused to accept Cheek's statements about there being no ugly places, houses, or objects in Scandinavia. Mary Tyler then tried to find a more balanced way of describing both the qualities of Scandinavian material culture and some promising aspects of material culture in America.

The correspondence framing this writing process did not contain any direct indications of editorial reactions to the re-write by Mary Tyler, but in comparing her text to the one published by Lewis Bergman, it seems fair to conclude that, in the published article, the views of both Cheek and the *New York Times* are being put forward.

The comparative drive of the three texts reveals what the real issue and motivation of the authors is: telling Americans what to do about their insecure attitude toward craft and artistic qualities and their incapability of making straight, personal judgments concerning the relationship between the visual appearance and performative capacity of household objects. The textual and contextual strategies used by the authors to underline the superiority

24 Both drafts and copies of the published article are, together with a correspondence in relation to the writing of this piece, found in the archive at the Library of Virginia, Richmond; see note 3.

of the Scandinavian example became still more sophisticated. In this process, Scandinavia, Scandinavians, and Scandinavian things were projected as a background for a correction of American attitudes—that is, for addressing the inferiority of average Americans.

The core problem in relation to the American attitude to objects for use, according to the three texts, was that Americans bought ideas and Hollywood mythologies rather than buying things; they bought narratives rather than the visual, palpable, or performative properties of things. Their sensibility was being shaped, or rather, distorted, because of the lack of common historical roots and traditions. As a consequence of a culturally destabilizing social mobility, the gap between artistic production and industrial mass production was uncrossable. All three texts emphasized that the previous two decades or so had seen a renaissance for American craft. The problem, however, was that these art forms were being produced for the elite and therefore, in economic terms, were out of reach for most Americans.

Basically, all three texts ultimately address American inferiority and Scandinavian superiority in relation to the artistic aspects of material culture. However, the way in which these differences are stated rhetorically differs. In the first text by Cheek, the most determined and committed of the three, the principal point is that the high quality of Scandinavian things in the end is secured by Scandinavian consumers, who know the names of the designers of the things they own; their American counterparts, meanwhile, know the name of the Hollywood movie star who, in some ad, is seen with the object in her hand.

In her rewrite of February 1954, Mary Tyler stated that not every door handle in Scandinavia was beautiful and well-designed. However, the monstrosities were fewer than in the United States. Scandinavian design culture manifested a unity—a common quality that marked every object, from the most expensive one-of-a-kind object to the mass-produced cheap ware; meanwhile, a general unevenness characterized the product culture in America. Therefore, her conclusion was that the popularity of the DiS exhibition was proof of the willingness of Americans to learn the principles behind graceful living.

Lewis Bergmann stated in the published article that the items included in the exhibition were a result of careful selection (i.e., they were not representative of Scandinavian product culture in general.) His point was, then, that the best things enjoyed more popularity "there" than the best things by Americans designers enjoy "here." Scandinavian things were both an element in and an expression of a "way of life" that was characterized by a balanced relationship between physical and spiritual values, past and present, mass living and artistic qualities of things, and the environment (Figure 12). Once again, the texts were concerned not with the properties of things, but instead with the qualities of people and their way of

life—at least a way of life as seen through the distorting lenses of bold generalizations.[25]

Concluding Remarks on "Scandinavianism"

More than half a million Americans showed their interest by visiting the exhibition, thereby helping the museums to break records of attendance; thousands spent money on buying duplicates of Scandinavian products in the exhibitions in department stores,[26] so the reaction from the professional communities of American designers and craftsmen was in most cases very appreciative. Furthermore, such positive valuations contributed to the construct of "Scandinavian Design" as discourse. One example may suffice. The American Craftsmen's Council arranged its first national conference as an adjunct to the DiS show in San Francisco in January 1957. The panel chairman of one session, Arthur J. Pulos, summarized the following in his report:

> The Scandinavian countries are the greatest source of inspiration and challenge to American designer-craftsmen. The excellence of their metal arts today is a direct result of their funding of art and crafts societies in the last century to counteract the general debasement of taste accompanying the advent of industrialism. In this country during the same period, our conglomerate ancestry, our borrowed culture, and the absence of a protective guild system were all factors in the headlong rush to abandon a young craft tradition to embrace the Industrial Revolution. We are today many years behind the maturity evident in Scandinavia.[27]

The notion of Scandinavian Design replaced other terms that more or less precisely referred to something "Scandinavian." Among others, Norwegian design historian Frederik Wilhagen, in his book *Norge i form*, has drawn attention to the fact that "Scandinavian Design" was not a Scandinavian invention but was introduced in connection with the Triennales of 1951 and 54 *and* DiS.[28] Previously, terms such as "Swedish Grace," "Swedish Modern," and "Danish Modern" were used with different purposes. Edgar Kaufmann, Jr., noticed in his review of DiS that, for example, "Swedish Modern" was used as a label in a broad sense to signal that things were modern, though not in the style of the Bauhaus.[29] Kaufmann states:

> Because of that [the virtues he enumerates in relation to Herlöw's installation, JG], these designs don't seem strange, however much they are marked by a native style, […] they are directly acceptable and enjoyable here.[30]

The attractiveness of Scandinavian things was not only a result of their "familiarity." The great tradition with which Scandinavian design was in dialogue counted for its plainness and unobtrusiveness. Kaufmann explains:

25 It should be noted that Cheek's prime concern is with the visual qualities, isolated from functional aspects.

26 The immediate commercial impact of DiS was, in fact, considerable. In November 1955 the Danish consulate-general reported to the embassy in Washington, consulates in the United States, and governmental bodies in Copenhagen that the estimated value of the export of Danish furniture to the U.S. in 1954 would amount to 10 million Danish kroner. It also stated that the export had doubled in one year and doubled 44 times since 1950. The statistics reported also reveal that in the context of U.S. imports of, for instance, chairs made of massive wood, Denmark had replaced Italy as the prime exporter by 1955. The Royal Danish Consulate-General, New York, Report nr. 2185, November 23, 1955, by Eyvind Bartels.

27 Arthur J. Pulos, "The Socio-Economic Outlook," *Asilomar,* (June 1957), 29.

28 Frederik Wildhagen, *Norge i form* (Norway in Shape), (Oslo, Stenersens Forlag: 1988), 167.

29 Kaufmann, *loc. cit.*

30 *ibid.*

> Among the inheritors of the great nineteenth century arts and crafts tradition today, Scandinavia seems to be in command of its legacy. This sureness was perhaps bought at the price of slow development, less sensational than elsewhere, but reliable. Now in the last five years one can trace in Scandinavian exports to this country a determined urge to experiment, formally if not technically, to gain a more authentic present-day expression, personal or at least national.[31]

Kaufmann seems less inclined to ignore the conservatism of Scandinavian design and even suggests a deficit as to expressive power to match the "real" present, and not only the "ideal" present projected by other critics and commentators. Kaufmann was a master of discrete criticism, and his professional background allowed him to act as the connoisseur of Scandinavian design and in this capacity even to judge what was missing in the exhibition, what was trivial, and what was familiar. In any case, Kaufmann's text was seen by Scandinavian officials as an approval of the DiS show as a whole, but it was Leslie Cheek who stated that DiS was a *triumph.* To the director of the American Federation of Arts, Thomas Messer, who had the responsibility for the tour around the United States and Canada, Cheek wrote as DiS left Richmond that the show was "… not a monster to apologize for, but a triumph to shepherd about."[32]

To sum up, in his capacity as president of Svenska Slöjdföreningen, Gotthard Johansson and his advisers fabricated a narrative of "Scandinavian Design" for the exhibition catalog to relate contemporary Scandinavian product culture, its ethics and aesthetics, to history, political culture, and, not least, the Nordic *terroir.*[33] As mentioned, this catalog text was rewritten and re-edited several times to accommodate an American readership. The prime rhetorical device used in this respect was the figure of *continuity.* Many of the corrections made to words and arguments during the writing process stressed this idea of endurance, coherence, and harmony. At least one of the proofreaders was American, a designer named John van Koert, who was engaged by The American Federation of Arts as a special commissar of DiS in the first period. One of the manuscripts in English in the Swedish archive has a number of handwritten corrections and remarks, all in van Koert's hand.[34] One example of his intervention has already been cited: the revision from "war, country against country" to "fraternal strife." Furthermore, he made two major deletions of passages containing characteristics of a range of object forms from each country. However, those omissions were later included and popularized in the press releases he wrote and were circulated with the exhibition to the effect that Koert's string of words referring to conspicuous features of Danish, Finnish, Norwegian, and Swedish objects were quoted in numerous newspaper columns.

31 *ibid.*

32 Letter from Cheek to Messer of February 8, 1954, Archive of the Virginia Museum of Fine Arts, Box B1072801: Directors Office Correspondence, 1933–1977, Folder: "Design in Scandinavia."

33 The French word, *terroir,* has been reintroduced in connection with the invention of the "New Nordic Cuisine" around 2003 to 2005 to indicate the influence of the natural environment on crops and wild herbs and animals. The doctrine of the New Nordic Cuisine is, first, to limit (not to say, shun) the use of raw materials other than those having the Nordic terroir as their natural habitat, and, second, to reconstruct, deconstruct, and rethink traditional Nordic recipes.

34 The archive of Svensk Form, Archive F 3B: 8.

The most popular string reads in its entirety:

> No dominant nationality emerges; the personality of each country is distinct. This reality is revealed, for example, in the chairs on display. The Danish chairs, with their intricate workmanship and highly sculptured surfaces, come from a country where hand operations in small shops are very much the rule. In contrast, the Swedish chairs are more frequently designed for factory production. Suave in line, comfortable, well made, equally successful, they are conceived from a different point of view and are produced in the light of a different set of economic circumstances. Finnish fabrics, for the most part, are characterized by muted color in arrangements of very close values. Upholstery materials from Norway are in more intense colors and reveal a national preference for well-defined patterns and bold contrasts between light and dark values.[35]

In the context of the whole field of texts relating to DiS, this description exemplifies how stereotypes come into being. It accounts, for instance, for the reason that the ideas of the Dane's delicate artistry, the Swede's graceful rationality, the Finn's sensuous finery, and the Norwegian's outspoken peasantry became commonplace in the press coverage. It may be that journalists varied the terminology, but the core meaning was remarkably stable, and the rhetorical device remained the same: to perceive (visual) properties of things as expressions of the mentalities of nations.

Thus, the combination of (1) the prevalence of stereotypes, (2) the emphasis on "otherness" and "us" in contradistinction to "them," and (3) the highly systematized representations of stereotypes and the Scandinavian "other" approximate the discourse of "Scandinavian Design" to a "Scandinavianism," which is, of course, another localization of the power relations, principles, and processes that Edward Said described by means of his much disputed theory of "Orientalism." This article is not the place to challenge Said's position (or that of his critics).[36] However, the three elements mentioned constitute an open model or figure of thought that functions productively as such, irrespective of the lack of historical evidence to support Said's own postcolonial argument for which he has been blamed, along with his misreading of sources. His description of a totalizing, dichotomizing, and essentializing discourse as the backbone of his "Orientalism" applies very well to the "-ism" on which we've focused in the present context.

Only one "irregularity" seems to arise from the case in question in comparison to the case of Said'ian "Orientalism." The difference is that the Scandinavians themselves provided much of the "stuffing" of the discourse of "Scandinavian Design." For instance, Johansson's keen construction of "otherness" is a tribute to a Scandinavian essential, and implicitly, his argument is based

35 "Since *Design in Scandinavia* is the product of collective effort, are national traits and preferences clearly revealed?," Press release issued by the Virginia Museum of Fine Arts, January 1954. Library of Virginia, Archive of the Virginia Museum of Fine Arts, General File, Exhibition Files 1936–76, B1072668.

36 Edward Said, *Orientalism*, (New York, Pantheon Books: 1978). My reading of Said owes much to James Clifford's sort of rehabilitation of the view put forward in *Orientalism*, especially by his subscription to Said's identification of an orientalist discourse and its structure and ingredients; see "On *Orientalism*," James Clifford, *The Predicament of Culture*, (Cambridge, Cambridge University Press: 1988), 255ff.

on a dichotomous line of thought that emphasizes what makes the Scandinavian material culture unique, without mentioning all the conditions that Scandinavian designers, manufacturers, and consumers have in common with others. Then, from the mid-1950s, Scandinavian commentators, critics, historians, and others simply adopted the discourse of "Scandinavian Design" after it had been elaborated, refined, and made sophisticated abroad. Actually, two different discourses exist: a commercial one in which "Scandinavian Design" stands for a general brand, and a design cultural one referring to the elements of the continuity issue, as discussed. This double discourse also invokes a conception of the post-war decades as a "Golden Age," the legacy of which is now being considered a yoke by contemporary designers and exporters.

Design in Informal Economies: Craft Neighborhoods in Istanbul

Cigdem Kaya[1]
Burcu (Yancatarol) Yagız[2]

Introduction

The modes of production in informal economies in developing countries are highly dependent on social relationships, including apprenticeship and vocational training.[3] As a result, different design processes can be expected to emerge in informal economies. Such contexts can require a different understanding of artistry, "objecthood," labor, and time. Some designers in clustered craft contexts in Istanbul, a representative of informal economies in the world, develop strategies and embed their design knowledge in new processes in ways that are not addressed in "modernist" design education.

The aim of this paper is to present how the encounter of designers and craftsmen[4] can create a genuine blend of practice that particularly stems from dialogical bonds as a new "designing" typology in informal contexts. Such bonds and the practices they engender simultaneously empower designers and local craftsmen, such as goldsmiths, stone setters, neon sign makers, inlayers, coppersmiths, and welders, in urban Istanbul neighborhoods.

To explore these new processes, we undertook in-depth, semi-structured interviews with 14 trained professional designers and the master craftsmen who work with them in Istanbul. In this article we selected significantly representative excerpts from these interviews to illustrate how craftsmen and designers coax each other to be open and alert for opportunities that arise during the collaborative production or design process. The research also aims to understand the effects of the unplanned exposure of the traditional culture of "crafts" and the culture of "design" to one another in a context of non-Western modernity.

Designers in Istanbul Neighborhoods

Located between Europe and Asia, the city of Istanbul is a unique case in terms of the dynamics between its urban layout and the modes of industrial and non-industrial production. The city's urban layout is a scaffold for the formation of an economic structure that accommodates different scales of production, dynamically linked within "a continuum between formal and informal economies."[5] The urban informal sector is estimated to be about 26% of the entire

1 Çigdem Kaya
2 Burcu Yançatarol Yagız
3 Ozlem Unluhisarcikli, "Training on the Job in Istanbul: A Study of Skills Acquisition in Carpentry and Car-Repair Workshops," *International Review of Education* 47:5 (2001): 443–458.Ozlem Unluhisarcikli, "Vocational Training through the Apprenticeship System in Turkey" published phd: (The Future of Lifelong Learning and Work Conference Proceeding, Ontario Institute for Studies in Education, University of Toronto, 2005). (Accessed online May 11, 2009 at: http://lifelong.oise.utoronto.ca).
4 Although, "craftsmen" as a term is not gender inclusive, it is widely used in the craft literature today to address all craftspeople.
5 Martha Alter Chen, 2007. "Rethinking the Informal Economy: Linkages with the Formal Economy and the Formal Regulatory Environment" (DESA Working Paper, no. 46, 2007) (Accessed online September 28, 2009 at: http://www.un.org/esa/desa/papers/2007/wp46_2007.pdf).

economy of Turkey, and Istanbul, as Turkey's leading city of national and international economic development, accommodates a large part of the informal sector in her urban neighborhoods.[6] The number of people who make their living from the informal sector can be as high as 90% in the developing world,[7] which indicates that informal clusters in Istanbul provide a vital source of income and a context of practice for a variety of populations.

Crafts clusters in Istanbul's urban neighborhoods constitute a significant part of the urban informal economy and present a significant scale of operation for designers.[8] Organization of crafts clusters at the neighborhood level has had considerable importance in Istanbul's historical urban life because these clusters have been sustaining the co-existence of urban life and economic activity for hundreds of years. The architectural heritage and the objects in the treasuries of the Byzantine Empire, followed by the Ottoman Empire, reveal advanced craftsmanship in the variety of urban businesses once practiced here. Although the majority of these craft businesses disappeared or have lost their centrality as "businesses," the remnants are still an economic force that cannot be overlooked. Such remnants can be regarded as evidence of how traditional modes of production can require a very long time to change and can even resist changing, despite the influences of globalization.

Turkey's transition from a local crafts-centered economy to a formal industrial economy provides the contextual background for design practice's unique progress in Istanbul's urban setting. This transition phase, marked by the establishment of industrial design education as part of the Turkish nation's modernization process,[9] excluded crafts as handwork or as an outdated mode of production. However, the new generation of designers has started to embrace marginalized crafts production as the advantages of being close to the production process have been recognized. In fact, some young designers have discovered the possibilities of working with local craftsmen and blending their industry-oriented design education with crafts processes.[10]

Today, Turkish design education aims to equip industrial designers with skills that can respond to the demands of an advanced formal industrial economy based on the corporate culture of designing. Although the design education system idealizes design and industrial production processes, almost all project mock-ups and even prototypes produced during design education are still organically connected to a master craftsman's shop, rather than to computer-aided manufacturing (e.g., rapid prototyping and CNC[11] technologies), which are expected to be provided by design schools. Designers in Turkey become familiar with crafts processes starting from their school years. On the one hand, design education equips prospective designers with intellectual accumulation based on modernity; on the other hand, it steers them to local workshops spread in different neighborhoods of the city. The culture of

6 Tuncer Bulutay, *Employment, Unemployment, and Wages in Turkey* (Ankara: International Labour Organization, 1995), 200.

7 Bill Gibson and Bruce Kelley, "A Classical Theory of the Informal Sector," *The Manchester School* 62:1 (1994): 82. Dennis Herschbach, "Training and the Urban Informal Sector: Some Issues and Approaches," in *Training for Work in the Informal Sector*, edited by Fred Fluitman (Geneva: International Labour Organization, 1989).

8 The tradition of producing daily objects by hand in craft clusters is still present in both urban and rural Turkey. Gokhan Karakus, "Contemporary Turkish Design in Turkey from 1990s to the Present Day" in *Turkish Touch in Design: Contemporary Product Design by Turkish Designers Worldwide* (Istanbul: Nurus, 2007), 20.

9 Karakus, 20. H. Alpay Er, Fatma Korkut, and Ozlem Er, "U.S. Involvement in the Development of Design in the Periphery: The Case of History of Industrial Design Education in Turkey, 1950s–1970s," Design Issues 19:2 (Spring 2003): 17–34. H. Alpay Er, "Peculiarities of the Periphery: Industrial Design Education in a Peripheral Context," *Desire Designum Design*, 4th European Academy of Design Conference Proceedings (Aveiro: Universidade de Aveiro, 2001), 26–31.

10 Ozlem Er and Cigdem Kaya, "Problems or Opportunities?: Overcoming the Mental Barrier for Socially Responsible Design in Turkey," *The Design Journal* 11:2 (2008): 170–6.

11 Computer Numerical Control

modernity encounters and reconciles with traditional craftsmanship in these seemingly insignificant workshops in Istanbul.

Prospective designers' familiarity with crafts contexts has the potential to develop further into a collaborative form of production. This form of production is characterized not only by its alternative way of making products in editions, but also by its genuine blend of practices based on exchange and integration of knowledge and experience. While these designers enrich traditional ways of production and empower local crafts, they grapple with critical questions of identity: how to work in a tremendously old and traditional crafts culture as a designer?

Istanbul and Crafts Workshops

Istanbul's urban layout offers designers various scales of operation in the city's economic spectrum. In addition to the industrial clusters generally situated in suburbia, informal crafts clusters in urban neighborhoods appear as unique spatial configurations where daily life blends with economic activity in various ways. "Urban neighborhood" as an operational unit and as a significant scale of production allows the blend of various forms of knowledge and practice in a daily setting. The spatial organization of a neighborhood provides a support structure for the sustainability of informal production; meanwhile, urban life on this scale facilitates the intertwining of personal and professional relationships.

Production in neighborhood-scale crafts clusters relies greatly on social relationships and the casual exchange of know-how and resources. Spatial proximity of workshops, material suppliers, service providers, and businesses in this setting is convenient for collaborations between local businesses, crafts workshops, and designers. The nature of clustering renders the interdependency between local stakeholders an important way for using of local resources and capabilities needed in production processes. These processes are characterized by exchange of know-how, borrowing and lending of resources and materials, and instantaneous co-operation.

Concentration of crafts workshops in Istanbul neighborhoods provides the context for shared production processes between designers and craftsmen. For instance, a designer who collaborates with a craftsman in a workshop is exposed to local resources and materials in such a way that this encounter often generates a spontaneous choice of materials and improvised applications in design. This spontaneity produces genuine design solutions only if the designer spends time in the workshop with the craftsman and shares the process of design and production with him. The workshop surrounded by a convenient organization of local resources facilitates the spontaneous formation of a mutually creative process based on exchange of knowledge and experience, and that benefits from the instant transfer of know-how from the "neighbors."

Figure 1
The road map of "Kubbe", a lighting design by Asli Kiyak Ingin for Made in Sishane in 2006. The piece traveled across five workshops in Sishane before being shipped to London.

The Field: Eminonu-Karakoy-Galata-Sishane[12]

In this research we interviewed the designers who work with craftsmen in the clusters on the Eminonu-Karakoy axis. These designers, who are the first generation of designers to have worked with urban craftsmen, have been in this 500-year-old craft neighborhood for about 30 years. The area thus stands out as the oldest field where designers and craftsmen first encountered each other. Hence, there has been a significant body of knowledge that designers and craftsmen produce through collaboration. As researchers, we could therefore accumulate enough data from the experiences of both the designers and the craftsmen to be able to identify some emerging patterns.

Divided by the Golden Horn, Eminonu is the center of the historical peninsula where the majority of the Byzantine and Ottoman cultural heritage resides. The area includes the Ottoman Imperial Palace, Hagia Sophia, The Basilica Cistern, Theodesian Walls (city walls), and the Grand Bazaar. The Grand Bazaar, the west end of the Silk Road, has always been famous for its jewelry. The large cluster of metalsmiths in the area has been raising apprentices, journeymen, and master craftsmen, such as gilders, setters, inlayers, engravers, and enamellers, for approximately 500 years.[13] Several old buildings (*han*) around the neighborhood house workshops of numerous master craftsmen: wire makers, welders, polishers working in one-room workshops.

While the Grand Bazaar is full of colorful tiles, jewelry, carpets, *kilim*s, and fabric waiting to be transported to the West, the informal network of craftsmen around the Grand Bazaar area is not visible to the buyers.

From Eminonu, across the Golden Horn, the neighborhood of Karakoy houses numerous suppliers that sell all sorts of hardware equipment, generally priced by weight. These suppliers are one-room stores next to each other along one main street and its small veins. This locus in Karakoy, locally known as Persembe Pazari[14] (Thursday's Market), is connected to Galata by a major hill

12 *Eminönü- Karaköy- Galata- SiShane*

13 Bilge Armatli Koroglu, Tanyel Ozelci Eceral and Aysu Ugurlar, "The Story of a Jewellery Cluster Metropolitan Area: Grand Bazaar (Kapalıçarsı)," *Gazi University Journal of Science* 22:4 (2009): 384.

14 Spelled *Persembe Pazari*, this is an open market where various semi-processed parts and mechanical elements (e.g., screws, nuts, and bolts) are sold.

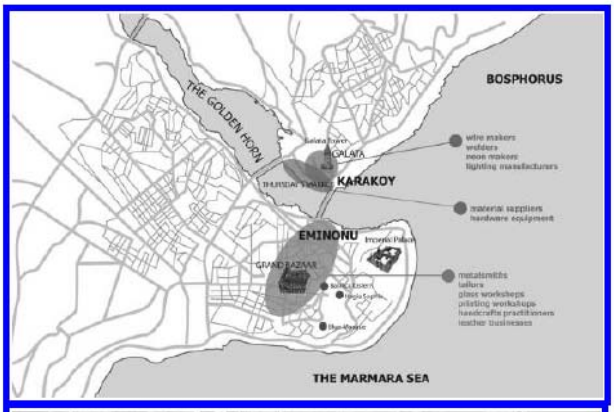


Figure 2
Clusters in the Eminonu-Karakoy axis. Map by Burcu Yagiz.

Figure 3
Çuhacıhan, one of the old buildings that house metalsmith workshops today. Photo by Cigdem Kaya.

that houses numerous workshops: welders, mold makers, neon shops, bowl turners. Galata, a 14th century Genoese neighborhood, connects Karakoy and Sishane, a 100-year-old cluster of the informal lighting industry.

The Genoese heritage in the neighborhood, including the Galata Tower, creates a cultural hub that forms a major market for consumption. The eastern side of the neighborhood is home to various artist initiatives, galleries, designer stores, and culture centers, whereas the western side houses the crafts workshops. Showrooms of some of the interviewed designers are also in these neighborhoods because the proximity of production and consumption results in a rich experience for designers. As a consequence, this area became condensed of consumption of well-crafted goods.[15] Strategic locations, such as Galata, which create interfaces imbued with cultural heritage between local production and consumption, have been the home of designers who work in informal contexts in Istanbul.

The Research

The designers and masters interviewed constitute a group that has organic and continuous ties with the research field through its practice. These designers and craftsmen have been working together in these neighborhoods for 2 to 15 years. Most of the masters and the designers have consistent interactions on a daily basis; in fact,

15 Ilpo Koskinen, "Semiotic Neighborhoods," *Design Issues* 2:2 (Spring 2005): 13–27.

we interviewed them in the workshops while they carried on with their work so that parts of their design and crafting processes in the workshop could compliment our questions.

As Istanbul-based researchers who have been trained as industrial designers, we also have prior experience in crafts as practitioners and in working with master craftsmen. During the interviews, we could embed ourselves in the working environment by incorporating our past experiences into the conversation.

The questions during the interviews focused on three major issues: the benefit of designer-craftsman collaboration, the hands on process shared by the designer and the master, including communication and learning, and how both the designers and the craftsmen identify their work as "design" and "craft." The first two sets of issues were explored by asking questions to both the craftsmen and the designers, while the identification of "design" versus "craft" has been explored by content analysis of the interview recordings.

A Dialogical Bond

A neighborhood-scale crafts cluster feeds on social relationships and vocational training, rather than on business relations. As stated above, sustaining relations in such a casual setting requires the designer, on the one hand, to engage in the daily life of the neighborhood so that he or she can understand the osmotic relationship between the workshop and its surroundings. On the other hand, being present in the workshop is fundamental when designers work with master craftsmen because working with the master is a situated dialogical process and is based on the mutual exploration of the idea and its execution. Typically, the master explores how the piece can be crafted technically by asking whether some changes are possible and even by making suggestions. This exploration is the start of a dialogue and a simultaneous hands-on experimentation that gradually shapes the object during long hours spent together. The process is re-directive in the sense that it builds on how the designer and the master both interpret the work. The masters want the designers to intervene while they work, in the improvisational nature of the craft. Designer Ozlem Tuna[16] provides an example of how improvisation, alien to the conventional design methods, is a sign of artistry for craftsmen: "Years ago unintentionally I gave out the drawings of a ring to three different master craftsmen. Although the orthographic and perspective scale drawings were identical, the master craftsmen came up with three different rings."[17]

Because craftsmen improvise by nature, the designers had to learn to think accordingly. When designer Verda Alaton went to Cuhacihan[18] to ask Mardik Usta[19] if he would be interested in working with her in 2007, Mardik Usta accepted this offer in the condition that Verda was present in the workshop and worked with him. Mardik Usta explains: "Sometimes I change my mind. Sometimes I have questions."[20]

16 *Özlem Tuna*

17 Ozlem Tuna, interviewed by Cigdem Kaya, October 23, 2009, interview 02, transcript.

18 *Cuhacihan* (spelled as *Çuhacıhan*) is one of the old buildings that today houses only metalsmith workshops.

19 *Usta*, meaning master craftsman in Turkish, is used with the name as a title in the Turkish crafts tradition.

20 Verda Alaton and Mardik Usta, interviewed by Cigdem Kaya, October 21, 2009, interview 01, transcript.

Figures 4a and 4b
Özlem Tuna, Vilyan Usta and Verda Alaton and Mardik Usta in the masters' studios. Photos by Cigdem Kaya.

Designer Hulya Celik Papuccuoglu[21] says that most of the time she takes advantage of being in the workshop and that, being there, she often changes her mind while the piece is being made. For instance, if the master is inlaying ivory, she might want to skip the last pencil work step and leave the ivory unframed.[22] As in the case of Papuccuoglu and Alaton, all the interviewed designers and master craftsmen have significantly described their working processes as a mutual state of constantly "changing their minds" according to the flow.[23] Designer Asli Kiyak Ingin[24] describes this state as "site-specific knowledge production."[25]

The nature of the communication between the designer and the craftsman necessitates the re-invention of site-specific tools for "designing together." Designers generally come up with an idea that is only half visualized. The work takes its shape as the master and the designer discuss what is technically reasonable, what is economically viable based on the amount of production, and what satisfies particular "tastes" (i.e., what looks good and what would look better). For this reason, although they have the necessary training, the designers deliberately do not draw technical drawings to communicate their pieces to the craftsmen. Because of the improvisational nature of the craft, the process of the master suggests much richer possibilities than simply to realize a drawing. Instead, designers use a hybrid of dialogue supported by non-detailed drawings and low fidelity mock-ups, generally from paper. Yet, the designers have all reported that the masters have such high capacity for empathy that they need to communicate just enough to let the master get "what they mean." Designer Alaton states that she and Mardik Usta's "heads match" so well that Mardik Usta can visualize in his mind a piece that Verda verbally describes.[26] Vilyan Usta, who works with designers Tuna and Papuccuoglu, says: "Masters should know designers very well. When they say something about a piece, I grasp what they really try to say."[27]

The empathetic communication between the master and the designer is central to the collaborative process. This non-verbal

21 *Hülya Çelik Papuçcuoglu*
22 Hulya Celik Papuccuoglu, interviewed by Cigdem Kaya, October 28, 2009, interview 03, transcript.
23 Ibid., transcript. Verda Alaton, interviewed by Cigdem Kaya, October 21, 2009, interview 01, transcript.
24 *Aslı Kıyak Ingin*
25 Asli Kıyak Ingin, interviewed by Cigdem Kaya, November 20, 2009, interview 08, transcript.
26 Alaton, transcript.
27 Vilyan Usta, interviewed by Cigdem Kaya, October 23, 2009, interview 02, transcript.

Figures 5a, 5b, 5c, 5d
(Consecutively) works of Hülya Çelik Pabuçcuoglu and Özlem Tuna who both work with Vilyan Usta.

communication appears to be a typical silent consensus among designers and craftspeople in Istanbul workshops. While designers have the skills to communicate what they want by using mundane, non-designerly and non-measured materials, masters are so perceptive that they can identify each designer's choices as "style."

For designers from post-industrial societies, such communication is a dying ability. In October 2009, a non-profit organization called "Made in Sishane," founded by designer Asli Kiyak Ingin to make Sishane workshops visible through collaboration, invited an international group of designers to the neighborhood to work on lighting projects. According to artist Teike Asselbergs, the facilitator of the project, the service that masters in Sishane provide is invaluable:

> In the Netherlands a designer has to submit detailed technical drawings to a workshop and pick up his work when it is ready. He pays more for the machines than [the] craftsmen. … Without sophisticated tools, the master craftsmen in Istanbul invest their time in solving design problems with the designers.[28]

28 Teike Asselbergs, interviewed by Cigdem Kaya, November 3, 2009, interview 04, transcript.

In the crafts cluster of Sishane, time is invested in the process of collaboration in the genuine and low-key atmosphere of the workshop. In most cases, the neighborhood structure has created such a dynamic culture of production, based on making together, that the process of design incorporates a dense transaction of knowledge between craftsmen and designers and extends beyond the walls of the workshop. This osmotic relationship between the workshop and the neighborhood, which stretches the tight bonds of design and lends authorship to multiple actors instead of one maker, is facilitated by spatial proximity: the "object" belongs to the neighborhood, and shared responsibility sustains this type of fragmented production, where authorship, authority, and control are constantly negotiated.

Design and Crafts Between Tradition and Modernity

In Turkey, the major difference between objects designed and made by master craftsmen and "designed objects" that are produced by master craftsmen with a designer's precise instructions is believed to be a matter of taste. In the Turkish design circle, it would not be wrong to say that the work of master craftsmen can easily be found "embellished," "overcrowded," "ornamented," and maybe even "tasteless," whereas design is believed to be simple and minimal—and thus "modern." Even though this classification does not fully marginalize crafts as a form of production, it does marginalize some aspects of the craftsman's organic relationship to the work. Designers and masters still converge toward each other, yet the perception of "design" and "craft" do not always blend because of the conjuncture of the era and of their representation in media. Crafts remain on the edges of the contemporary discourse of design while "design's claim on taste" can cause a discontinuity between the vocabularies of contemporary design and the tradition of crafts. The designer, as the offspring of the contextual anomalies in a non-western modernity, still owns the idea, whereas the craftsman owns the labor. Designer Tuna expresses frankly that the terminology in this context falls short: "Sometimes, I do not know who a designer is. The master can be a designer or a hobbyist at home. It is something inside the person. The definition of design changed. Like a shift of validity..."[29]

The nature of collaboration between designers and craftsmen in Istanbul neighborhoods neither isolates some characteristics of the mentioned distinct processes nor manipulates them in pursuit of a mere "design conception." Instead, it blends vocabularies of both practices in such a way that the process is able to feed on the unique details of the traditional workshop culture in authentic ways. Papuccuoglu, trained as an industrial designer, underlines that the qualities of the handmade are irreplaceable for her because of "the warmth of hand touch, like small differences in every hammer

29 Tuna, transcript.

30 Papuccuoglu, transcript.

stroke."[30] According to Ingin, "the work itself is a school" that requires the designer to let go of the earlier conception of "design" as we know it and open up to possibilities, opportunities, imperfections, and even chance.[31]

During the long hours of working together, designers and masters move across borders unconsciously. This unconscious border crossing is a way of shaping the supposedly "separate" inputs of both sides into a final object. The outcome of such a reflective process shows how different ways of working co-create some distinct features in contemporary objects, such as Mardik Usta's affinity to use sheet metal.

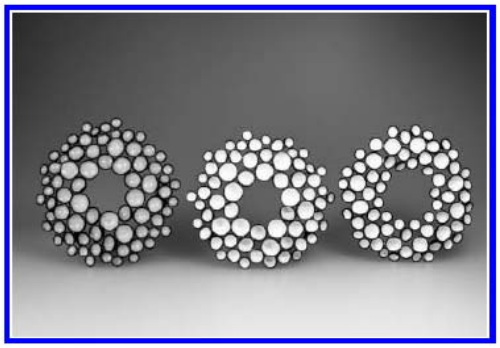
Although Mardik Usta is equipped with techniques of advanced mastery after having worked in Kapalicarsi for 35 years, he prefers to work with sheet metal, apparent in most of Alaton's minimalist work. Because each natural stone is set in its unique base, each ring brings a new design problem that challenges Mardik and allows him to reveal his mastery of construction as opposed to embellishment. Mardik Usta feels free to express his personal taste: sometimes he does not like a stone or he thinks that it will not sell. Sometimes he wants to make not a ring but a necklace, and sometimes he makes a piece on his own as a surprise for Alaton.[32] Seated right next to the workbench of the master, Alaton notes that from time to time they improvise together, just by bending sheet silver and exploring the potency of form.[33]

While masters intervene in design decisions, designers—most of whom are trained as industrial designers—have developed hands-on crafts skills, unlike a conventional designer. Designer Tuna always makes the wax models and molds of jewelry herself.[34] According to Papuccuoglu, a designer has to be able to make things herself so that she is able to understand technical decisions and to control them better. Papuccuoglu says: "Sometimes the master says that it is not possible to make something. Then I tell him that he can if he does this and this."[35] Nazan Pak, now a master metalsmith, who worked as an apprentice to a goldsmith for several years right after she graduated from design school, explains how design can follow skills:

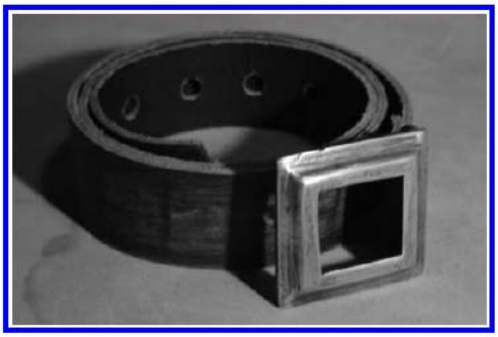
> I watched the master working for a long time when I first went to learn the craft. Then he taught me stone setting.

31 Ingin, transcript.
32 Mardik Usta, transcript.
33 Alaton, transcript.
34 Tuna, transcript.
35 Alaton, transcript
36 Nazan Pak, interviewed by Cigdem Kaya, November 4, 2009, interview 06, transcript.

Figures 6a, 6b and 6c
Works of Verda Alaton, silver and natural stones.



Figures 7a and 7b
Works by Nazan Pak, a method she learned in metal, applied in resin afterwards. Necklace with flowers from epoxy resin. Foam broaches from enamelled silver. Photos by Ela Cindoruk.



Figures 8a and 8b
Batuhan Yüce, belt buckles from gas pipes and industrial profiles. Buckles are welded by a lighting maker in Sishane.

> Then I made a 3 meters long tube... Every time I learned a technique, I was drawing pieces that can be done with that technique, or only with a combination of the techniques I knew. As I grew in technique, I could draw more complex pieces to make.[36]

While all designers use craftsmanship in producing their ideas, some also welcome the opportunity to display the works of craftspeople among their work. Designer Batuhan Yuce[37] displays in his shop beadwork by prisoners known as *hapishaneisi*[38] needlework, and border lace without any modification beside his own work. Similarly, Tuna does not like to overlook a piece made by Vilyan Usta even though it does not necessarily match with her concepts, and Alaton embraces personal choices of Mardik Usta. The qualities and visual language of the craftsmen's pieces compliment these designers' missions.

Conclusion

Designers working in the informal crafts clusters in Istanbul's urban neighborhoods have been investing in processes of collaboration that re-script the interaction of the two ideologically different professional worlds. In this collaboration, they bring to mind Appadurai's

37 *Batuhan Yüce*

38 *Hapishaneisi*, meaning "prisoners' work," is a traditional needlework made with sand beads in prisons in Turkey.

39 Karen Fiss, K. 2009. "Design in Global Context: Envisioning Postcolonial and Transnational Possibilities," *Design Issues* 25:3 (Summer 2009): 3-10.

conception of indigenization in Fiss's words: "….that consumer goods, along with their attendant symbolic and ideological values, are not transferred in an uninterrupted and unmediated way to passive consumers."[28]

Among the network of neighborly collaborations and interdependent culture of production, daily encounters between both design and craft practices result in a new "designing typology" that uses both the designer's and the craftsman's skills reflectively. The workshop as a school of learning sustains the cohesive process because both the designer and the craftsmen submit to the idea of symbiosis: a kind of commitment that promises an altered experience of producing and that feeds the designer and the crafts at the same time. It is important to recognize that this symbiotic relationship is the product of the willingness by both parties to absorb and integrate each other's design processes site-specifically.

On the one hand, the heritage of crafts culture, in which masters perceive their first task as problem-solver, take responsibility for the work, and own the process with the designer, enables such a working pattern to emerge. A craftsman's willingness to experiment with the designer, as in the case of Istanbul's informal crafts culture, re-locates crafts skills and the entire support structure behind them into a new world of design: the supposedly separate worlds of modern design and traditional crafts come closer in this world, explore intersections, and reveal new "designing typologies." On the other hand, designers who choose to work at the informal end of the spectrum, on an urban neighborhood scale, already loosen their idealized formal design processes, improvise, and invent methods of communication to re-script their role so as to avoid isolating the imperfections of lived experiences in the workshop. This scale of production does not allow marginalization of "the other." Instead, owning the process mutually and sharing the outcome requires a certain commitment to participate equally.

Objects, as the natural outcomes of this symbiotic relationship, are both the shared goal and the by-products of this process. While the majority of the designers explore the skills of each craftsman as a possible means to expand their visual language according to new methods of making, the objects inherit both the craftsman's and the designer's efforts to navigate through the established codes of design/crafts communication. Even though the artistry, working techniques, and material preferences of the craftsman in the workshop provide the pathway toward the final design, the osmotic relationship between the workshop and the neighborhood always has the potential to re-direct the process. A designer might pick up an unexpected material from a hardware store on her or his way to the workshop in the morning and challenge the design of the unfinished piece to include that new material.

On the other hand, the process should satisfy the professional goals of both the craftsman and the designer on an individual level because the process is a challenge in itself: collaboration needs to alter the individual design processes of both parties. A design challenge might ask for the import of know-how from the neighboring workshop, or it might technically compel both sides to appropriate their past experiences in this new context.

This new typology strongly depends on and develops from solidarity as well. That Tuna proudly tells how Vilyan Usta prepared a big dinner and cooked fish on the roof of the workshop for her, her designer friend Papuccuoglu, and their families is remarkable.[40] There seems to be an intangible exchange, not only in terms of design and craft knowledge but also in terms of attitude. Today, in contemporary Turkey, craftsmen still believe in the essentiality of solidarity. Meanwhile, designer Yuce says that it would be disloyal to his work if he tagged his items with a barcode.[41] What is at stake in this collaboration seems to have created an unusual work typology based on constant negotiation of ideas, where no one is really overriding the other—a lost process in the developed world.

Acknowledgment
We extend thanks to Dr. Sebriem Timur Ogut for encouraging us to publish this article.

40 Papuccuoglu, transcript.

41 Batuhan Yuce, interviewed by Cigdem Kaya, November 5, 2009, interview 07, transcript.

The System Diagrams: Shifting Perspectives

Soojin Jun, Miso Kim, Joonhwan Lee

As society becomes increasingly saturated with information, the design of that information becomes ever more important. However, rather than reinforcing the agency of the user, many information design products limit one's possibilities for action. Take bus route maps (Figure 1), for instance. No problems emerge when looking at each bus route separately, but when users try to compare them to one another, it is difficult to understand their relationship. Only scattered information is made available, so that users are unable to form a clear, holistic understanding of how the bus service operates. Consequently, if an unexpected delay in a bus service were to occur, passengers might not be able to find and take an alternate route.

Although a variety of approaches are available to resolve this problem, using system diagrams is a method that allows information designers to consider the holistic context. It is necessary not only to understand the system itself but also to study diagrams as a means of effectively describing the system, which is abstract in nature. The use of diagrams is a key component in communicating the holistic structure of an information system; however, a lack of rigorous discussion in the field means that designers often have difficulty examining systems as an integral part of their work.

The purpose of this article is to provide a theoretical framework that broadens designers' conception of system diagrams and enables them to design diagrams that can be effectively applied to various situations, needs, and design problems. In the first half of the article, we introduce four kinds of system diagrams and analyze different examples; the second half of the article focuses on how different modes of thinking are used to address varied needs and goals in the design process.

Organizing Principles of System Diagrams

The term "system" can be traced back to the Greek word *sust ma*, which means reunion, conjunction, or assembly.[1] Philosophical interest in systems and system thinking has been around since the works of Plato and Descartes[2]; however, it gained momentum as a discrete subject of study around the 1950s, emerging alongside the rise of general system theory and cybernetics.[3] In his seminal article written in 1950, Ludwig von Bertalanffy asserts:

> As opposed to the analytical, summative, and machine theoretical viewpoints, organismic conceptions have

1 Charles François, "Systemics and Cybernetics in a Historical Perspective," *Systems Research and Behavioral Science* 16 (1999): 203.

2 Ibid, 203.

3 For a critical discussion of the historical development of system thinking, see Ludwig von Bertalanffy, "The History and Status of General Systems Theory," The Academy of Management Journal 15:4 (1972): 407–26, and Charles François, "Systemics and Cybernetics in a Historical Perspective," *Systems Research and Behavioral Science* 16 (1999): 203–19.

Figure 1
Seoul bus map. Photograph taken by the author

> evolved in all branches of modern biology which assert the necessity of investigating not only *parts* but also *relations* of organization resulting from a dynamic interaction and manifesting themselves by the difference in behavior of parts in isolation and in the whole organism.[4]

He further defines the term system as "a set of elements standing in interrelation among themselves and with the environment."[5] In other words, the whole is more than the sum of its parts, and this characteristic of a system is derived from the relationship of its parts. While this definition of a system—which is based on the whole, the part, and the relationship—persisted for decades, the focus has recently shifted from object to human. Systems thinking has come to play a critical role in the fields of management, social science, and organizational design. According to Richard Buchanan, the emphasis is no longer on material systems, but on the human who experiences the system. Buchanan goes on to explain that:

> One of the most significant developments of system thinking is the recognition that human beings can never see or experience a system, yet we know that our lives are strongly influenced by systems and environments of our own making and by those that nature provides. By definition, a system is the totality of all that is contained, has been contained, and may yet be contained within it. We can never see or experience this totality. We can only experience our personal pathway through a system.[6]

The fundamental question, then, is this: how is it possible to design a system diagram if a system functions as a totality and humans are unable to experience the whole? In fact, the role of a system diagram is not a mere representation of a particular phenomenon or fact. According to Charles S. Peirce, a "diagram not only represents the related correlates, but also, and much more definitely, represents the relations between them, as so many objects of the Icon."[7] In other words, system diagrams are about relationships.

The word "relationship" should not be understood in reductive terms as merely a connection between numerous components; rather, it should be perceived as an idea or thought that integrates different parts into a whole—that is, the organizing principle of the system. Because humans cannot experience the totality of the system, Buchanan argues, "we create symbols or representations that attempt to express the idea or thought that is the organizing principle."[8]

Ultimately, this process is done in an effort to grasp the system. For example, a cross symbolizes the organizing principle of Christianity, whereas a road sign represents the driver's possibilities of action that shape the traffic system.

4 Ludwig von Bertalanffy, "An Outline of General System Theory," *The British Journal for the Philosophy of Science* 1:2 (1950): 134. Reprinted In *General System Theory: Foundations, Development, Applications* (New York: George Braziller, 1968).

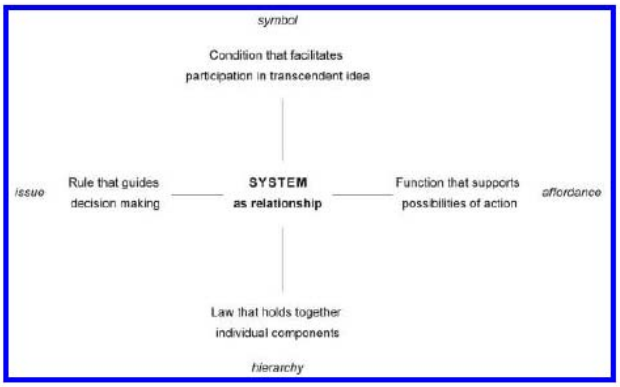
5 Ludwig von Bertalanffy, "The History and Status of General Systems Theory," *The Academy of Management Journal* 15:4 (1972): 417.

6 Richard Buchanan, "Design Research and the New Learning," *Design Issues* 17:4 (2001): 12.

7 Charles S. Peirce, "Prolegomena for an Apology to Pragmatism," in *The New Elements of Mathematics*, Carolyn Eisele, ed. (The Hague: Mouton Publishers, 1976), 4:316. (Original work was published in 1906.)

8 Richard Buchanan, "Design Research and the New Learning," 12.

Figure 2
Organizing principles of system diagrams



As the focus in considering systems has shifted to human beings, a system diagram should be regarded as a visualization of the organizing principle of the system; thus, the diagram is altered to become a *place* that opens up a user's possibilities of action and enables effective use of the system. In turn, the key to system diagrams is not simply to *represent* a relationship among things—it is to *understand* the relationship of how the system is organized, according to the intent of the designer, the purpose of user-action, and the collective function. To further investigate this notion of a system diagram, four kinds of diagrams are proposed. In these diagram types, relationships emerge depending on the following organizing principles[9] (Figure 2): 1) the law that holds together individual components, 2) the rule that guides decision-making, 3) the function that supports users' possibilities of action, and 4) the condition that facilitates participation in the transcendent idea.[10]

The System as a Law That Holds Together Individual Components

According to Herbert Simon, a system can be understood as an aggregation of individual components. In his book, *The Science of the Artificial*, Simon defines a complex system as "one made up of a large number of parts that have many interactions."[11] His intent was to figure out the fundamental quality of the interaction that constitutes the architecture of complex systems, ranging from artificial/natural adaptive systems and social systems to symbolic systems. Simon ultimately argues that the complex system is composed of subsystems, and the subsystems are again made up of their own subsystems. He recognizes this hierarchy to be the distinctive relationship among the parts that organizes them into a system. As Simon puts it, "hierarchic systems have some common properties independent of their specific content. Hierarchy is one of the central schemes that the architect of complexity uses."[12]

In other words, hierarchy can be explained as a kind of law that serves as an objective force and that is universally applicable.

9 Distinctions made by these terms (i.e., law, rule, function, and condition) are based on the class discussion on kinds of systems (Richard Buchanan, *Design, Management, and Organizational Change*, class lecture presented at Carnegie Mellon School of Design, Pittsburgh, PA, Spring 2008).

10 For a more complete discussion of this term, see Richard Buchanan, "Children of the Moving Present: The Ecology of Culture and the Search for Causes in Design," *Design Issues*, 17:1, Winter 2001, 67–84. This term is more fully explained later in the article. Here, this notion of the "transcendent idea" is used to help further explore the nature of system diagrams.

11 Herbert A. Simon, *The Sciences of the Artificial* (Cambridge, MA: MIT Press, 1969), 183.

12 Ibid, 184.

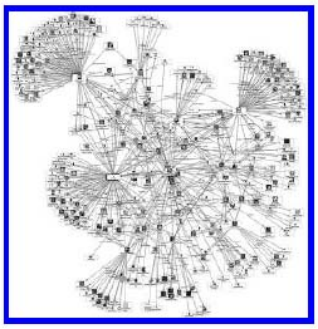


Figure 3 (above left)
Social network diagram. The FMS Advanced Systems Group. www.fmsasg.com/SocialNetworkAnalysis/SocialNetworkAnalysis_Graph.gif

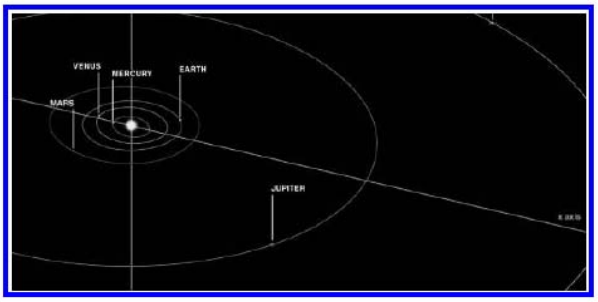


Figure 4 (above right)
Solar system diagram. The International Astronomical Union. Design by Martin Kornmesser ©The International Astronomical Union

Figure 5 (right)
Solar system diagram. NASA, courtesy of nasaimages.org © NASA

A network diagram is one of the representative system diagrams that draws from this principle of hierarchical relationships among individual elements. Figure 3 is an example of social network analysis: similar to a molecule made of electrons, the individual people in the network diagram would be scattered data, without the hierarchical relationship visualized by the lines, the distances between people, and their overall positions. The repeated hierarchy of who gives orders to whom and who belongs to whose command becomes the core organizing principle that holds these individuals together into a system.

The two system diagrams (Figures 4 and 5) display the same celestial bodies from the solar system. However, the hierarchical law that serves as the organizing principle differs in these two diagrams, thus yielding two very different illustrations. Figure 4 focuses on the hierarchy of size rather than an exact representation of distance between the planets. In contrast, Figure 5 is clearly based on the hierarchy of distance, disregarding the hierarchy of size.

The System as a Rule That Guides Decision Making

The next approach is based on the understanding of a system as a set of rules that guides an agent's decision-making. In contrast to the first approach, which focuses on a hierarchy among individual components, the emphasis here is on the role of the agent in the system and, in particular, on choices that individual agents can make.

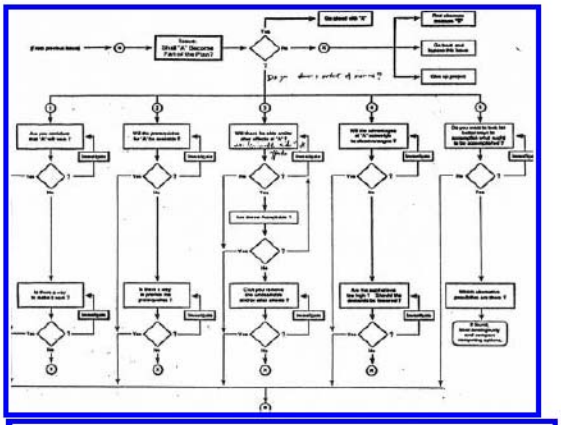


Figure 6
Flow chart, Horst W. J. Rittel, "The Reasoning of Designers," Arbeitspapier A-88-4. Stuttgart: Institut für Grundlagen der Planung, Universität Stuttgart, 1988.

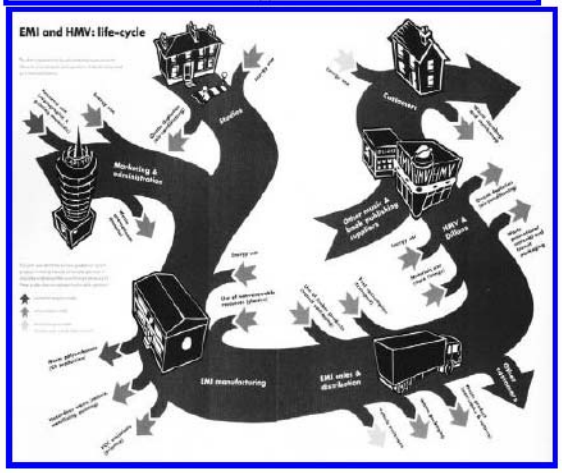


Figure 7
Music product life-cycle diagram. Designed by Tor Pettersen et al. in The Best Informational Diagrams (Japan: P.I.E Books), 48. ©Tor Pettersen & Partners

This approach is closely related to the discussion of information systems by Kunz and Rittel, who define a system as "constructs of rules and procedures which are meant to serve the desired end."[13]

It is important to stress that Kunz and Rittel applied rules and procedures to their discussion of systems. Instead of regarding a system as a piece of hardware that consists of individual components, they are interested in its human aspect—in the agency that operates the system. In this respect, rules that are arbitrarily chosen and changeable, rather than universal laws or truth, organize the second kind of system.

In addition to this concept of agency, it is also important to consider a system as an argumentative process that is based on "a model of problem-solving by cooperatives."[14] This "system as process" is articulated in Kunz and Rittel's discussion of an issue-based information system, where "issues" are identified as elements of the system, as are topics, positions, and arguments.[15]

13 Werner Kunz and Horst W. J. Rittel, "How to Know What Is Known: Designing Crutches for Communication" in *Representation and Exchange of Knowledge as a Basis of Information Processes*, H. J. Dietschmann, eds. (North-Holland: Elsevier, 1984), 57. (Original work was published 1983.)

14 Werner Kunz and Horst W. J. Rittel, *Issues as Elements of Information Systems*, Working Paper no. 131 (Institute of Urban and Regional Development, University of California, Berkeley, 1970), 1.

15 For a more detailed account of the issue-based information system, see Werner Kunz and Horst W. J. Rittel, *Issues as Elements of Information Systems*, 1–9.

Figure 8
Cologne-Bonn airport sign system. Designed by Toan Vu-Hu. www.toanvuhuu.com/projects/cologne-bonn-airport/ (accessed June 29, 2010) ©Toan Vu-Hu.

According to the authors, issues are "brought up and disputed because different positions are assumed."[16] This kind of system leads individuals to continuously make decisions about the issues that are created by their reasoning process, so they reach the decision considered most reasonable among all the other possibilities.

One common example that reflects this relationship of rules is a flow chart (Figure 6)—a diagrammatic representation of step-by-step procedures. By following a path through the flow chart, the individual expects to find a solution to a problem. Flowcharts have been used as a method for problem-solving because they translate whole process into manageable steps, where issues become focal points that determine the sequence of individual decision-making moments. Figure 7 is an example of a system diagram that visualizes the lifecycle of EMI Music products and operations. What makes this diagram distinct from other diagrams is its incorporation of related environmental issues; for instance, color-coded arrows organize key environmental areas, including manufacturing facilities and music-publishing suppliers.

The System as a Function That Supports Possibilities of Action

The third perspective focuses on understanding a system as a functioning group. This view emphasizes the notion of an organic whole, where the whole is lost if it is mechanically cut into parts. James J. Gibson proposes that human visual perception is not merely a channel but a system that requires all the parts to work together, with the explanation that "vision is a whole perceptual system, not a channel of sense. One sees the environment not with the eyes but with the eyes-in-the-head-on-the-body-resting-on-the-ground."[17] He further explains that a system has "organs" and is not just a sense with mere receptors. Thus, as Gibson states, "the perceptual capacities of the organism do not lie in discrete anatomical parts of the body but lie in systems with nested functions."[18] The function, then, is the key relationship that makes an organ a necessary part of the whole.

The concepts of *system* and *relationship* in this third approach are especially meaningful within the context of experience design. An experience is one's interaction with an environment, where the environment can be interpreted as a kind of system that supports one's possibilities of action. However, not just any kind of surrounding can serve as an environment for an organism. According to Gibson, the environment and the organism, or animal, are inseparable because the animal modifies the environment and the environment shapes the action of the animal. Therefore, the environment *affords* the animal, which means that the environment, as the system, provides the function of good or bad. Based on this functional relationship, Gibson constructs his theory of *affordance*, which is defined as a relationship between a living animal and its environment and their ever-changing interaction.[19] A system diagram

16 Ibid, 2.
17 James. J. Gibson, *The Ecological Approach to Visual Perception* (Boston, MA: Houghton Mifflin, 1979), 205.
18 Ibid. 205.
19 Ibid. 127.

Figure 9
Tokyo subway map. http://japan-guide.com/ (accessed June 29, 2010) ©http://japan-guide.com/

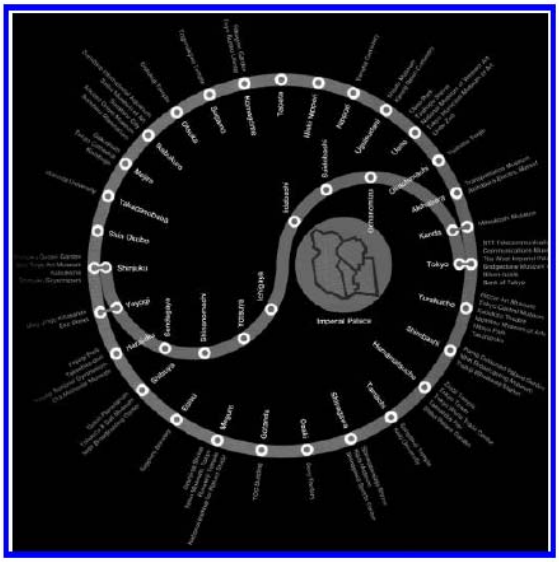


Figure 10
Wurman's Tokyo subway map. Richard Saul Wurman, Tokyo Access. (Los Angeles, CA: Access Press, 1984). CRichard Saul Wurman

that exemplifies this approach is an airport sign system (Figure 8). Recognizing individual signs as affordances is difficult *until* the situation demands that the user understand the function of each sign and how the signs work together in a holistic relationship. This understanding is ultimately required to achieve one's goal when using this sign system. When action takers discover the relationships between the signs in the system, by the sheer act of navigating within the system they realize how the signs and maps in the environment function together. In this moment, arbitrary signs are related to other signs, and the surroundings subsequently morph into an environment that provides systematic support for possibilities of action.

The System as a Condition That Facilitates Participation in the Transcendent Idea

The fourth principle comes from the transcendent idea that harmonizes individual parts of a system. This transcendent idea can be spiritual, ethical, aesthetic, or cultural, depending on the context and purpose of the system. It serves as a vision that motivates humans to participate because "an ideal of beauty, truth, or justice" offers them meaning and values.[20] This relationship of a transcendent idea emphasizes the whole rather than the parts and is often communicated by symbols or emblems. Kenji Ekuan's discussion of the Makunochi Bento, or traditional Japanese lunchbox, can be helpful in articulating this notion of the transcendent idea.[21] For Ekuan, the Japanese lunchbox is a system that embraces diversity and yet assimilates all the different parts into a unified whole. He

20 Richard Buchanan, "Children of the Moving Present: The Ecology of Culture and the Search for Causes in Design," *Design Issues*, 17:1, Winter 2001, 82.

21 Kenji Ekuan, *The Aesthetics of the Japanese Lunchbox* (Cambridge, MA: MIT Press, 1998).

explains in detail how the contents of the lunchbox differ from one another, yet the form, the manner of preparation and delivery, and the ritual bring them all into harmony. From this perspective, the Makunochi Bento arguably embodies an aspect of Japanese culture, where diverse subcultures are unified by the transcendent idea. Indeed, the lunchbox itself symbolizes the spirit of Japanese culture.

A Tokyo subway map (Figure 10) designed by Richard Saul Wurman for the Tokyo Access Guide illustrates how a system diagram can convey this transcendent idea. In this map, the symbolic aspect is immediately recognized; meanwhile, an emphasis is placed on the Imperial Palace, which is marked as a red circle. The use of a symbol is effective not just because it simplifies the subway lines (Figure 9) into an easily recognizable sign; neither does it stand as a mere shape that makes the Tokyo subway map (Figure 10) distinct from the subway maps of other countries. More importantly, the form itself strives to capture the essence of Japanese culture and to challenge its users to ask themselves what might constitute Japanese culture as a whole. Thus, this system diagram not only signifies a subway route but also embodies Tokyo itself as a system. Ultimately, ordinary objects like subway maps and lunchboxes transcend their common status by potentially offering a new perspective—one that brings together different aspects of Japan into a unified whole.

Case Study: The USPS Domestic Mail Manual Transformation Project

Thus far, this paper has investigated different kinds of relationships that are found in various kinds of system diagrams. If understanding the relationship of individual components is the key to identifying the organizing principle of a system, would it be possible, then, to identify these relationships in the context of a design process? What is the primary focus of each relationship in the activity of designing? System diagrams can be used in various stages of the design process to serve the designer's purposes. For example, system diagrams can work as roadmaps at the very beginning of the design process, they can function as a means of communication with internal stakeholders, or they can be used by clients to make any necessary revisions they deem important. They can also become a final product for customers to find information and to educate themselves. System diagrams in different phases of the design process have distinct characteristics; meanwhile, they can also be distinguished by their purpose and context of use. Consequently, these distinctions can change both the relationship within a diagram and its formal representation.

This paper now examines how different kinds of relationships emerge in various system diagrams created in a specific design research project. The Domestic Mail Manual (DMM) Transformation Project[22] was an interaction design project that moved beyond the

22 The DMM Transformation Project (2001–2005) was a research project in the Carnegie Mellon School of Design that was funded by the U.S. Postal Service from 2001 to 2005 (Richard Buchanan, project director; Angela Meyer, project manager).

traditional information design approach. Similar to the Australian Tax System Design Project,[23] the DMM Transformation Project focused on designing the information system with a long-term goal of encouraging organizational change in the U.S. Postal Service (USPS).

The DMM is a manual of more than 1,000 pages that contains all the mailing standards in the United States. It serves as the operational core of a federal agency that employs 800,000 postal workers and supports an industry of more than nine million people. However, because it was difficult to use, unnessecarily complex, and structurally inaccessible, this manual failed to provide employees and customers with the tools to understand mailing options or any guidance for making informed decisions. Therefore, designing the information architecture became the most important concern, especially because the scope of the project did not include changing the actual wording of the regulations.

Designers noted a big discrepancy between the existing topic-based structure and the way users make decisions, so that "understanding the relationships of the information contained in the DMM was the key to creating a structure that properly reflected the connections and dependencies within the document."[24] Consequently, a human-centered design approach became the fundamental principle that guided multiple goals at different design stages. During the restructuring of the architecture, numerous system diagrams were created to serve various goals. To demonstrate how the four kinds of relationships previously discussed can be used in a design project, this paper now analyzes four specific cases of system diagrams in the DMM Transformation Project.

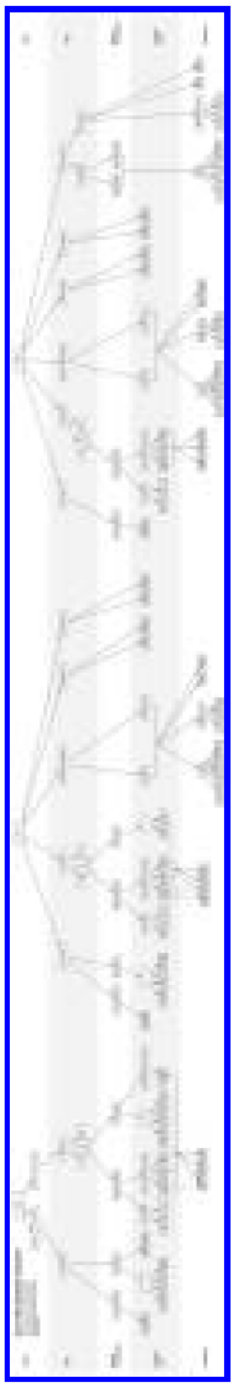
Structure Diagram

One of the fundamental goals of the DMM Transformation Project was to design a new system architecture that would improve efficiency of use. Also needed was a resilient system that could evolve over time. During the initial stages of the project, while working closely with content experts at the USPS, designers continuously analyzed, tested, and restructured the contents in different versions to ensure that the structural details were accurate. Different system diagrams were generated in this process both to analyze the existing structure (Figure 11) and to represent the changing architecture. Therefore, a system diagram was needed that focused on a simple and universal hierarchy to be used as a basic reference point for the ongoing conversation.

After the redesign of the architecture, the team collaborated to fit the content into the new structure. The Adobe Framemaker application was introduced because concerns were raised about supporting and managing a document with such a complex cross-reference. In addition, regulations would inevitably need to be updated over time, resulting in a need to change the document.

23 According to John Body, "In the ATO, the new design approach is about applying the discipline of design emerging from graphic and industrial design schools to the design of interactions with tax products and services, and to the design of the whole tax system" (Body, 2008. 57). For greater detail on this project, see Alan Preston, "Designing the Australian Tax System," in *Managing as Designing*, Richard Boland and Fred Collopy, eds. (Stanford: Stanford University Press, 2004), 208–13, and see John Body, "Design in the Australian Taxation Office," *Design Issues* 24:1, (Winter 2008): 55–67.

24 Carnegie Mellon School of Design and the United States Postal Service, *The Domestic Mail Manual Transformation Project Process Book* (unpublished, 2005), 6.



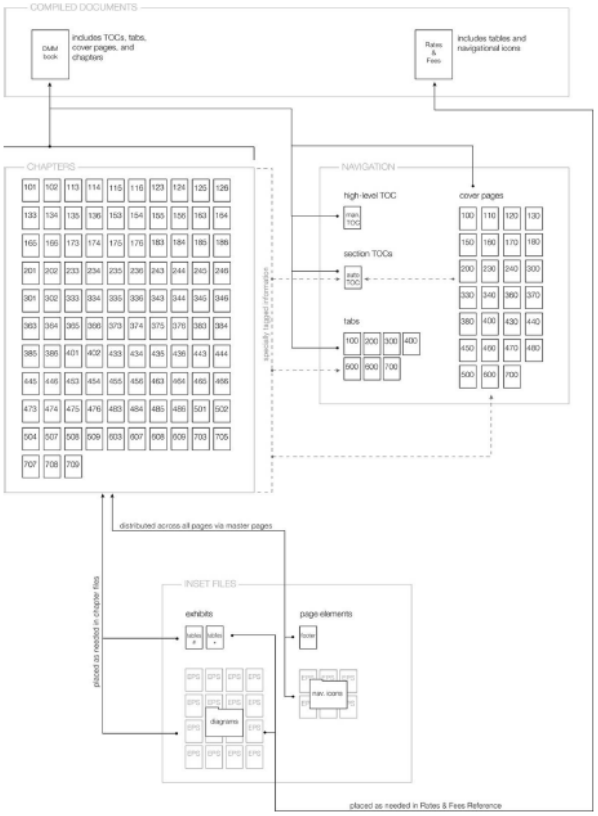


Figure 11 (left)
Rate structure analysis diagram

Figure 12 (right)
Framemaker file structure diagram

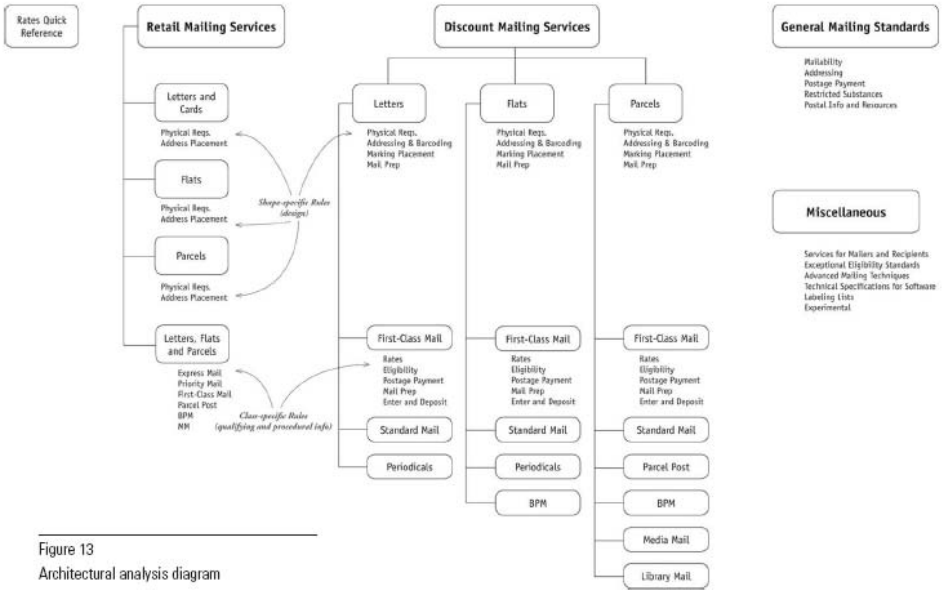


Figure 13
Architectural analysis diagram

The solution was to create a working system for the manual's ongoing editing and publication, including software, content, code, and maintenance guidelines, that would allow the USPS to continue to develop the DMM. Figure 12 is a diagram of the publishing workflow of the DMM, which was prepared as part of the maintenance guidelines. The major relationship depends on the analytical representation of how computer files are cross-referenced. While the content in Figure 12 does not differ much from that in Figure 13 (which focuses on architectural analysis), the need and purpose has changed, resulting in a changed relationship. Whereas Figure 12 focuses more on the hierarchy of regulation numbers, Figure 13 focuses on the hierarchy of shape-class-topic.[25]

Pathway Diagram

Another important goal of the project was "to develop user pathways to help customers find the information that they need in the DMM."[26] To guide users in making informed decisions, the pathway diagram (Figure 14) was based on the idea of intuitive user pathways: individual pathways are structured following the logic of decision making based on a series of questions that a user might ask when trying to decide *whether* and *how* to use the postal service; for instance, "the *issue* of shape" answers the question, "what are you mailing?"[27, 28]

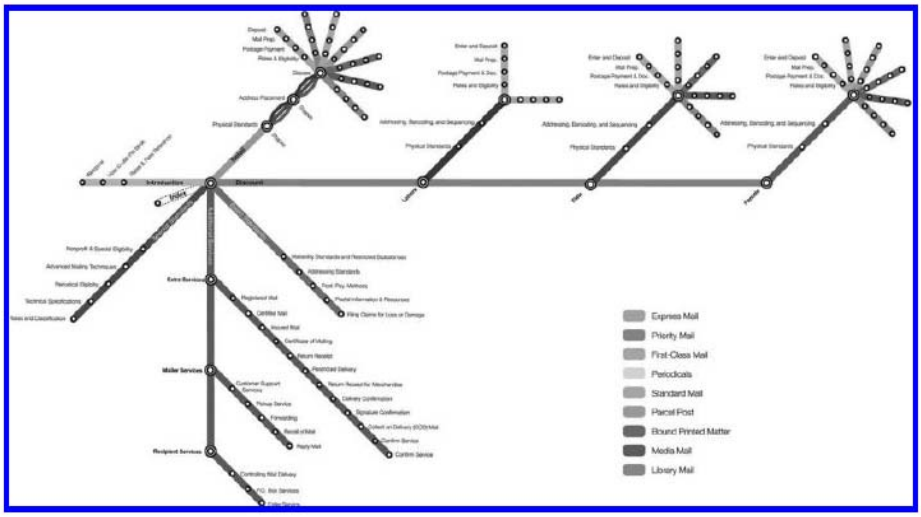
The prominent feature in a pathway diagram (Figure 14) is the connections made by lines with multiple cross-sections that lead to a certain destination, just like a subway map would. This particular

25 Research showed that users expected multiple layers of organization in the structure based on the logic of mailing procedures—first by shape, then by class, then by topic. This finding was reflected in the structure of the new DMM.

26 Carnegie Mellon School of Design and the U.S. Postal Service, *The Domestic Mail Manual Transformation Project Process Book* (unpublished, 2005), 23.

27 Ibid, 6.

28 The shape refers to "the shape of the mailpiece," such as letters, flats, and parcels.



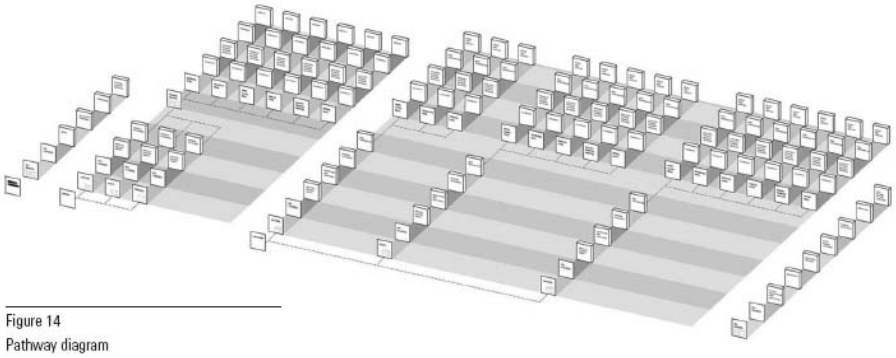
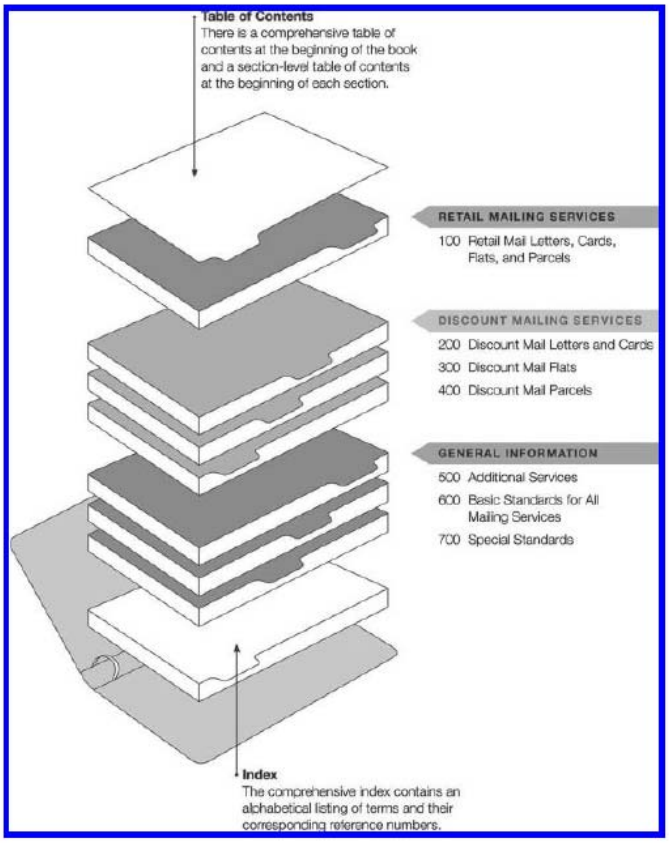


Figure 14
Pathway diagram

Figure 15
Previous iteration of Pathway diagram

form was appropriate not only to highlight the concept of pathways but also to use two major aspects that this specific system diagram features. First, a pathway diagram makes procedures apparent so that the connections between modules are recognized as navigable pathways. When transitioning from the phase of redesigning the new information architecture to the phase of fitting the content into the new structure and of making detailed adjustments, a system diagram different from the ones developed in the prior phase was needed. A new diagram was created to communicate the proposed design to the team. Second, this diagram was used to manage process and tasks. When the existing structure of the DMM was deconstructed to fit the content into the new one, this new diagram was used to visualize and check the progress as each module was completed.

Figure 16
Organization diagram



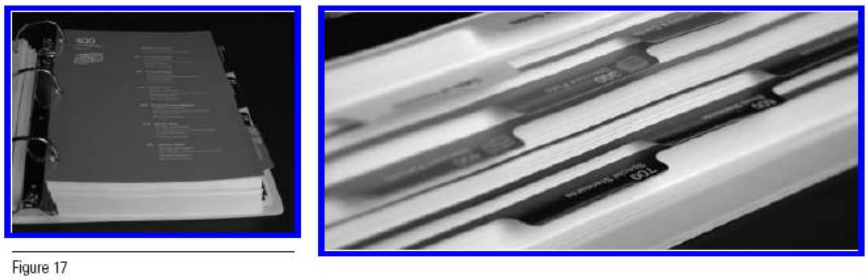
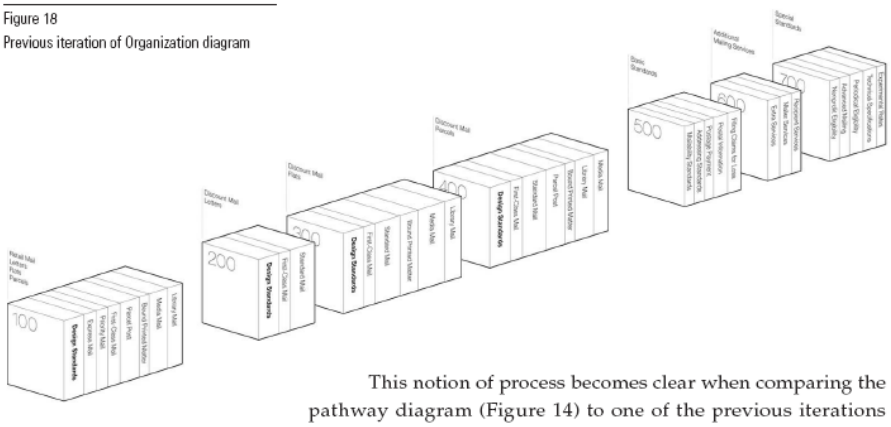


Figure 17
New DMM's color-coded divider tabs

Figure 18
Previous iteration of Organization diagram

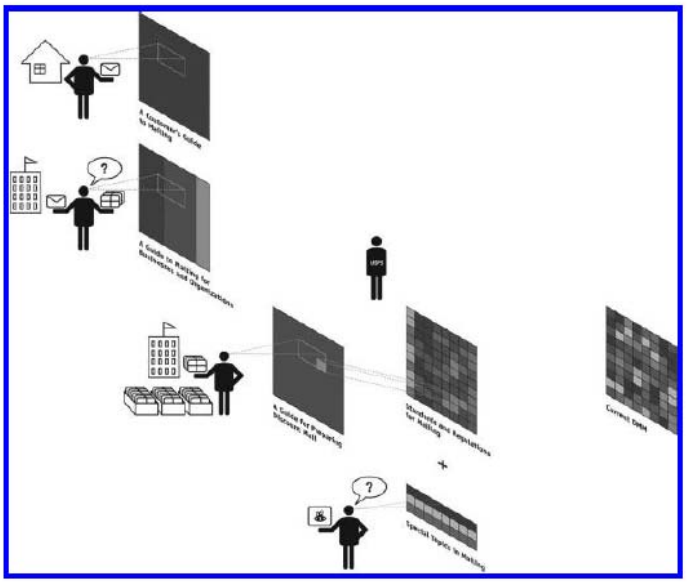


This notion of process becomes clear when comparing the pathway diagram (Figure 14) to one of the previous iterations developed for the same purpose (Figure 15). There are positive aspects in Figure 15; for instance, each module amount and the regulation numbers are more visible. However, that visibility was not the primary relationship Figure 15 needed to illustrate. In addition, the concept of navigable pathways that guide a decision-making process was not made apparent in this diagram. Lastly, representing each module in the shape of a book seemed to emphasize the materiality of documents rather than the connections between the modules. In a way, the organizing principle in Figure 15 is closer to a static hierarchical organization for structure diagrams than to a dynamic, navigable sequence.

Affordance Diagram

Another goal of the DMM Transformation Project was to create a document that is intuitively meaningful to the user. Achieving this goal entails using an information system that presents the standards from a user-perspective and that can serve pragmatic needs. After completing the restructuring of the architecture and inserting the content, the designers needed to prepare introductory material for the users. The material was not simply serving as a preface or table of contents—it was conceived to do more than just help a user locate information. First, as the old DMM evolved into the new DMM, users would need a quick and easy explanation that helped them understand the differences between the two and showed them how to use the new DMM. The introductory text also had to serve as a promotional piece that would encourage USPS employees to embrace the new document and to educate themselves about its use.

Figure 16 is the core system diagram that illustrates the document structure of the new DMM. Here, *affordance* is the key organizing principle; the diagram structure is based on the user-centered approach that accommodates users' needs, creating a satisfying user experience by providing intuitive access and a seamless transition. This goal is articulated in the DMM process



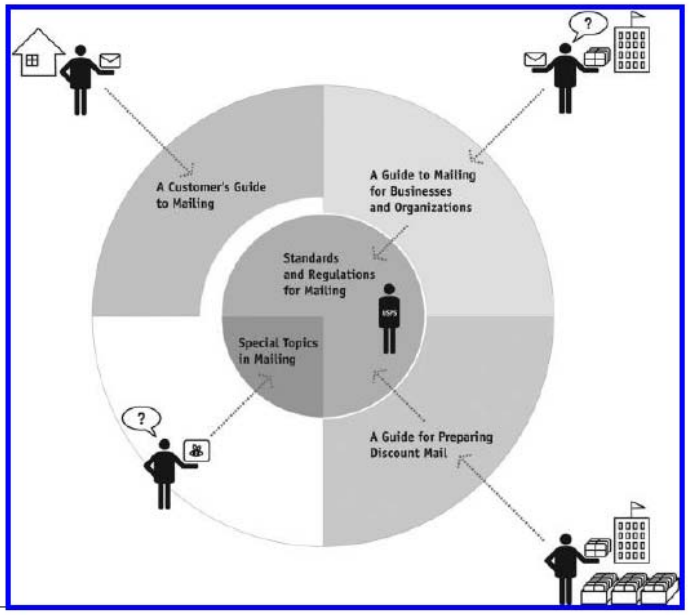


Figure 19
Shape-based framework diagram

Figure 20
User segmentation and access diagram

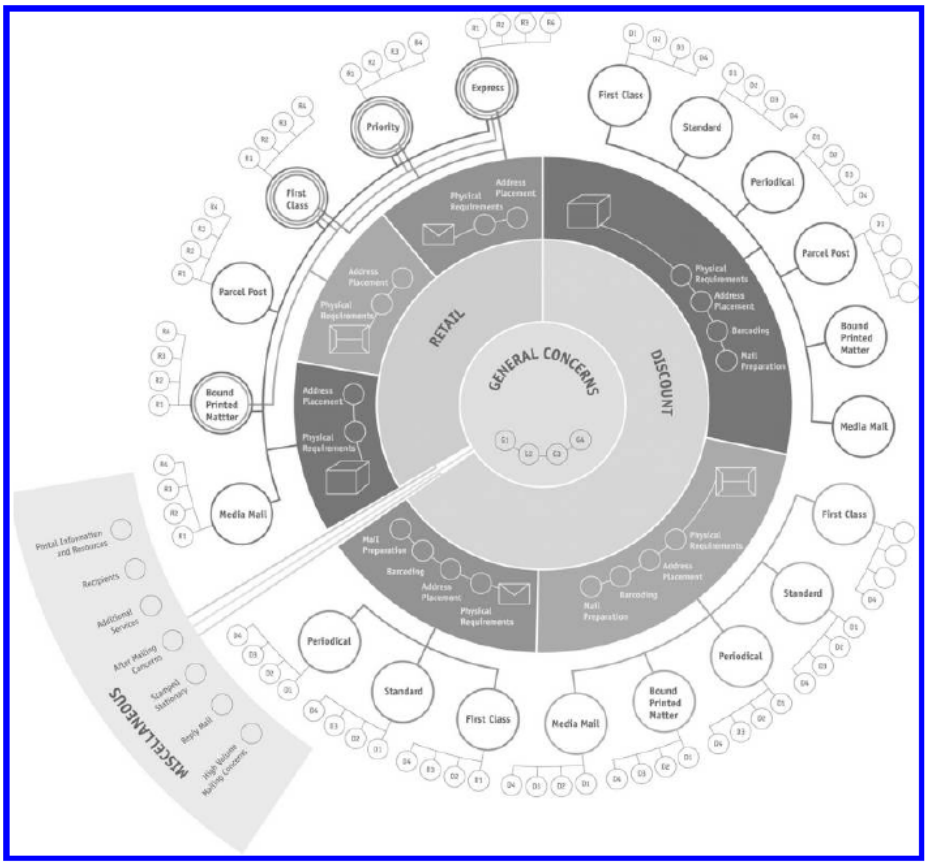


Figure 21
Architectural overview diagram

book: "good document architecture does more than just provide categories and arrangements for content. It is designed to create affordances for good user experience and is closely informed by users' real needs and expectations."[29]

Figure 16 is an example of where this relationship of affordance is realized. First, it is demonstrated by the way the new DMM is physically represented. In contrast to other schematic system diagrams, this one imitates the physical aspect of the new DMM, including the color-coded divider tabs for each section or the binder for the entire volume (Figure 17). The idea of a modular approach is similarly appropriate for best meeting a user's needs by allowing for modification of the document. Second, the use of perspective implicitly reinforces this relationship of affordance, in particular by presenting the new DMM opened and ready for use, reflecting the user's point of view. To use the new DMM, the first step is to assemble all the documents into a binder for personalization. This system diagram affords the user's possibilities

29 Carnegie Mellon School of Design and the U.S. Postal Service, *The Domestic Mail Manual Transformation Project Process Book* (unpublished, 2005), 6.

for action in determining how to assemble this document: it does not directly instruct but; rather indirectly provides one of the major entry points for document navigation. This organizing principle becomes evident when comparing Figure 16 to another iteration (Figure 18). To some degree, Figure 18 may be a more realistic representation of the volumes in that it illustrates the hierarchy of the thickness of each module. However, this detailed description is not important in the context of user action, rendering such information both unnecessary and not particularly helpful.

Vision Diagram

There were specific reasons for the project to encourage a shared vision: first, it was an academic project where, every year, a new flock of students had to quickly and efficiently assimilate into the project. It was important that the new students comprehend the project's long-term goals. Second, the work itself was complex and fragmented because there were multiple components being developed by different members, and the interweaving of task items required a holistic approach. A clear vision was needed in this process to allow the project to evolve as a whole.

The DMM process book features a clear and straightforward vision statement: "the project will design a Domestic Mail Manual that speaks directly to users and tries to meet their needs in the clearest and most efficient ways."[30] This vision of human-centered design remained the fundamental principle that drove the development of the process, unified diverse people within the USPS system, and facilitated participation in the culture of change. In other words, the project's human-centered approach was not only about the interaction between the user and the document; rather, it was about the culture of the organization that included internal users, postal employees, and even those responsible for establishing and enforcing regulations. Therefore, it was necessary to share the vision of human-centeredness with the client and with team members. At the time, this vision was ambiguous yet novel, even to the designers who joined the team. As a result, system diagrams played a critical role in embodying this abstract idea in a visible form to promote its acceptance.

Figures 19 and 20 are examples of system diagrams created for this purpose. Both were made in the early phase of the project and were posted on the wall of the studio as roadmaps to maintain the team's vision. With a rich use of symbols that effectively show the perspective and action of users, these diagrams tell the story of using the DMM for mailing as a whole. In comparison, Figure 21, which served as the inspirational figure for the project, was developed in a later phase, when the need to share the vision with the client emerged. After proposing the initial architecture, it was important to prove that the new shape-based structure would be usable by providing the clients with the first glimpse of what the

30 Ibid, 23.

new DMM would be. The comprehensive nature of Figure 21 helped bring to clients' attention the high-level organizing principle of "user-intuitive shape" without any unnecessary details. At the same time, by focusing on the relationship of holistic unity, this diagram sucessfully ensured the client that every piece of information had a logical place within the system.

Conclusion

In this article, we've identified four modes of thinking that differentiate a variety of relationships. The intent in doing so is to help clarify the organizing principles of system diagrams. However, the purpose of this research was not to place any value claims on the relationships; to be clear, one relationship is no better than another. Recognizing that all relationships are valuable advances the discussion of system diagrams in design and in related disciplines. Better understanding the essence of a system diagram can lead to a shift in perspective—from seeing it as merely a data-rich statistical graphic to conceiving it as a place for invention or discovery.

The uses for system diagrams are shifting. The emergence of complex information systems, human-centered design, and participatory culture point to a further situational change in how system diagrams will be used, as illustrated by the case study examined in this paper. To take action, users need to understand the organizing principle of complex information systems. As the problems of design become more complex, designers increasingly face the need to work in collaboration with experts from other fields, to bring in clients or users to participate in the design process, and to mediate the collaborative work of these different stakeholders. There is a growing need for a system diagram that can work as a reliable reference tool and a shared structure to support group work in such a situation, where multiple stakeholders are engaged.

This situation calls for high-level thinking that helps designers foster different modes of thought in design reasoning, while simultaneously serving as a reference point that guides designers' reflective arguments. This research contributes to design education and practice by broadening designers' understanding of the nature of systems, classifying system diagrams used in the design process according to their purpose, and exploring their potential use for supporting users' action and shared group vision.

Active, Local, Connected: Strategic and Methodological Insights in Three Cases

Nicola Morelli

The activity of design is rooted in the very first part of the history of the industrial revolution. In the past century, designers invented new products, sometimes introducing substantial social or technical innovation; in other cases, they contributed to improving the aesthetic or technical quality of existing products or materials. Their role has been essential in the definition of an industrial model based on large production volumes for broad markets, but they have also contributed to the maturation of such a model toward sophisticated production platforms and product architectures, which allow industrial production to customize solutions for smaller target groups. Design's contribution has been to help define the social and economic role of industrial production in modern society—to the point that it has sometimes been seen as one of the key factors influencing the identity of the culture and the image of a country.

When industrial production models—and the development model they supported—have been identified as one of the most critical nodes in the question of sustainability, designers have been seen as part of the problem and perceived the urgence to change their perspective, methods, and role. Because of the public perception of design action, which associates design with material and large-scale production, and because of the urgency of the question of sustainability, the choice for designers is either to embrace and cultivate new perspectives for their work or to be marginalized as secondary actors in the development of more sustainable strategies. The former implies that designers reframe their skills and competencies in view of a sustainable perspective. The second case, while not requiring significant changes in the design profession, implies that designers will not be able to seize the opportunities offered by the broad socio-economic change suggested by the question of sustainability.

The debate over sustainability within the discipline of design in the past decades can be framed within two general parameters. The first addresses the question of "what to do." This question refers to the definition of strategies for improving the environmental efficiency of our production and consumption system. The second addresses the question of "how to do it." This question refers to the definition of a methodological approach that supports an effective implementation of sustainable strategies. The present historical

moment, however, makes these two parameters extremely fluid and open. On the one hand, strategic frameworks are continuously reshaped by rapid demographic changes, evolution of technology, social evolution, and economic crisis. On the other hand, methodological frameworks inherited from industrial production have also been reviewed and adapted to new situations, thus generating open and rapidly changing methodological perspectives.

Before turning to some design cases that illustrate the intersection of strategic and methodological frameworks, we identify some relevant issues concerning the two parameters.

Questions of Strategies:
Activating Local and Individual Resources

In the past few decades, the debate on sustainability has explored many directions for improving the environmental health and efficiency of our planet. In the past few years, though, it has become clear that environmental sustainability cannot be achieved without a focus on social and economic sustainability. The most recent economic crisis has further clarified this connection by bringing to light how the failure of large multinational companies has influenced the social and economic traumas. For this reason, any social and economic strategies for future development must be applied in the area where social quality, environmental quality, and appropriate and sustainable forms of economic development converge.

This area defines a complex landscape of solutions that describes different and interwoven paths. To understand this paper, some of these paths need to be better described:

Localization of solutions. Although globalized companies are a reality that economic crises cannot wipe out, the most relevant factors for competitiveness are placed in the local context (Becattini 2004). The need to provide context-specific solutions is forcing companies to develop their global strategies in alliance and cooperation with those in the local contexts in which they operate. Although the environmental, social, and economic sustainability of strategies developed in this context should be evaluated on a case-by-case basis, some essential characteristics of these strategies are intrinsically sustainable. The decentralization of production, indeed, tends to reduce the environmental costs of transport, but in addition (and this is probably more relevant) those strategies tend to activate human, material, and natural resources in the local context. In particular, the activation of local human resources (i.e., through local services, manufacturers, institutions, and users) makes it possible to realize a regenerative process: together with the final outcome of the production process, the activation of such resources also stimulates the regeneration of values, of knowledge, of the institutions, and of the natural environment. When related to a specific context, such as industrial districts, such local co-production processes have proven

to be a source of competitive advantage, both for local contexts and for companies participating in it (Becattini 2004).

Networking resources. In a centralized industrial culture, large companies produce solutions for larger or smaller target groups. This "top-down" structure clearly separates producers from users. Producers are creating value, whereas users (or *consumers*, as defined in this logical framework) are "destroying" such value (Normann and Ramirez 1994; Ramirez 1999). This logical structure dominates the paradigm of traditional industrial production and has been the guiding star for the development of industrial economies. According to this logic, the industrial system progressively *relieves* people from many of the tasks and responsibilities in their daily routines, from washing clothes to organizing parties (Normann 2000). The hidden risk in this idea is that, together with responsibilities and concerns, people are also deprived of their own practical, operative, and even social skills, thus generating a progressive *waste* of human resources (Manzini 2005). However, some signals are emerging that reveal the emergence of opposite trends, from both the production side and the consumption side. The signals from the production side come from companies that are revising their strategies through the direct involvement of users in the production process. Many companies are now considering such strategies to increase the flexibility of the production process and to generate highly personalized solutions, which ultimately push the boundaries of mass customization toward individual solutions (Morelli and Nielsen 2008). The same need for highly personalized and context-related solutions is stimulating individuals, groups, and organizations on the demand side to undertake individual and collective initiatives to solve very specific problems.[1] Once again, the social and environmental quality of these initiatives should be analyzed case by case but their intrinsic characteristics are consistent with the main strategies for sustainability because they create networks among human and material resources in local contexts, thus allowing for *short production chains*. These new signals, both from the production side and from the consumption side, suggest a progressive shift in social and economic systems, from value chains (i.e., top-down production systems that clearly define and separate each value production phase) to a value constellation—a networked production system in which the value is coproduced by different actors, including producers, service providers, local institutions, and individual users.

Distributing solution potential. The shift from centralized models to networked ones also implies a shift from a model in which the power to generate solutions is concentrated in few places and social roles, to a model in which a relevant part of this power is distributed to local communities and individuals. The new model tends to increase the problem-solving capabilities of local communities. Such problem solving power is not an alternative to the traditional industrial production models, but rather is comple-

1 The EU-funded EMUDE project collected many cases of such individual and collective initiatives in a blog: www.sustainable-everyday.org. The initiatives cover a wide range of local and personal initiatives, including initiatives to reduce traffic congestion, to take care of local green areas and cultivate local vegetables, and to increase social interaction in a local area between elderly people and children.

mentary to them. Industrial production's strategies are based on top-down provision of clearly defined solutions (business and governments provide products and services to citizens), whereas the horizontal networks allow for an exchange of *sticky* resources—resources such as tacit knowledge, mutual understanding, and solidarity, which cannot be codified, institutionalized, or prescribed. The activation of such resources often discloses a landscape of new opportunities.

Questions of Method: Applying Industrial Design Strategies to New Problems

During the past century, industrial design has generated its own operative paradigms (i.e., a toolbox of methods and tools to approach design cases)[2] to support industrial production. Both industrial companies and designers had to take into account some general criteria concerning the need to generate economies of scale the codification, communication, and transmission of knowledge across different phases, actors, and places in the production process and a clearly defined subdivision of labor.

Industrial design also has contributed to the most recent evolution from mass production to mass customization. Its contribution was key in supporting more modular product structures and product platforms, by which industrial production has achieved a level of flexibility that comes closer to the flexibility of craftsmanship in the pre-industrial age.

A deep or thorough revision of designers' roles should not ignore the heritage coming from its collaboration with industrial production. Several criteria that have been guiding designers in this context still make sense in the new context:

Reproducibility. The outcome of industrial activities must be reproducible. A century ago, Henry Ford reshaped industrial production toward a model that would dominate for several decades—a model based on large scales of production. More recently, industrial developments have reduced the scale of production to individual types of products. In this context, the concept of reproducibility has been transposed from the whole product to its component parts or its production processes. This transformation is producing a shift from economies of scale—focused on the supply side and working on increasing the scale of production of a single product for the largest possible target group—to economies of scope—focusing on the demand side and offering different types of products or services to smaller target groups. This shift is also moving the idea of flexibility from material products to solutions. Products were reproduced through the multiplication of material production; flexibility in production was challenged by the capability of the production system to incorporate as much knowledge as possible about individual needs. Co-produced solutions, meanwhile, are based on individual and context-specific knowledge, and the

2 The term operative paradigm has been introduced by Arbnor and Bjerke. An operative paradigm includes methods and tools borrowed by different disciplinary areas and appropriately adapted to deal with a specific study area.

challenge is to organize this knowledge to make them reproducible on a larger scale.

Subdivision of labor. The shift from craftsmanship to industrial production was based on a logical disassembling of a craftsperson's knowledge and functions into modules, which could be individually treated in different phases of the industrial production process. This principle led to the modularization of industrial products, and such modularization, later on, supported mass customization. Each module could be treated by different people and required different technical knowledge.

When modularization is applied to solutions instead of products, tacit knowledge and hidden capabilities might be involved, which would generate a high degree of customization (Morelli and Nielsen 2010). This knowledge is "sticky," meaning that its links to the contexts make it hard for producers and designers to acquire it in a codified form; thus, integrating it into the traditional production process is impossible (von Hippel 1994). For this reason, the inherited practice of designers to disassemble complex functional systems into modular architectures must be re-adapted for solution architectures; these adaptations delegate knowledge modules and distribute decision and action power among a heterogeneous workforce, which might include actors (i.e., final users, users' organizations, and local institutions) that previously were external to the traditional production process.

Codification of solutions. The process of disassembling the craftsperson's knowledge in modular production systems has been possible through a sort of reverse engineering of material products and the re-composition of them on the basis of clearly codified instructions. The process of codification has been essential for the reproducibility of some knowledge, previously embedded in a craftsperson's brain, so that it could be handled by new people (technicians or low-skilled workers employed in production plants). The shift from products to solutions and the inclusion in such solutions of a new and often unskilled people suggest two possible strategies for circulating knowledge:

- A new effort of codification (from technical knowledge embedded in industrial processes to common users), and
- An effort to support the exchange, without codification, of implicit and tacit knowledge among users.

The two strategies are complementary: the first supports *vertical* communication from companies (and institutions) to customers (or citizens), whereas the second creates the conditions for horizontal networks of cooperation between people.

Focus on users and on the demand side. The previous criteria derive from the intersection of industrial production logic and the design profession; this one, meanwhile, derives from the specificity of the design profession and can prove useful for the

redefinition of an operative paradigm. Being often placed in the area of interaction between industrial production and final users, designers have developed skills and capabilities to interpret users' cultures, needs, and behaviors and translate them into industrial offering (Verganti 2003). Such capability, recently improved with the support of ethnographic methods and sociological considerations, is crucial when focusing on the nodal point of defining new production and consumption models, proposing new scenarios and lifestyles, and supporting horizontal networks of collaboration between individuals at the local level.

Activating, Localizing, and Connecting By Design: Three Cases

Many cases of sustainable social innovation are emerging that have generated localized, individualized, and networked solutions. Such cases often derive from spontaneous initiatives of citizens or groups of individuals, or from specific local conditions. This pattern raises some questions about the possibility of generating social innovation in the framework outlined above, as a result of design activities; assuming that such innovation is possible, what kind of operative paradigm is needed to support design action in these cases? In the following sections, three projects are proposed that, in different ways, address these questions. All the cases are part of the teaching and research activities undertaken at the School of Architecture and Design (A&D) at Aalborg University and are based on a direct involvement of some of the actors (i.e., companies, service providers, users) that will be running or using the service. We describe each of these projects to explain the framework in which the project has been developed, the characteristics and structure of the service, and the methodological considerations resulting from the project.

Local Meal Service for Elderly People

In the past few decades, the need to reduce welfare costs has inspired policies that promote active and independent lifestyles for elderly people. In Denmark this principle was used also for reorganizing policies for the senior population, based on the goal of keeping people in their own home as long as possible (Platz 1987). This policy implies a certain level of social and physical activity by the elderly people, who are not supposed to be helped in every function of their daily routine, but rather to be supported in their attempt to work autonomously to the satisfaction of their own needs.

Elderly people who have the physical capacity and the willingness to live in their own home are supported with a series of public services, such as meal services, cleaning services, and daily visits from healthcare personnel. They also use common infrastructures, such as activity centers or meeting spaces, to maintain an active lifestyle within their neighborhood. The general approach of local authorities is to be open to any opportunity to improve the level of activity of elderly people because it increases their chances of sustaining an independent life and reduces the costs of public intervention.

The *Delight Assist* project, developed in cooperation between the School of A&D and the central kitchen in Hjørring, is considering this context as the starting point for the redesign of the meal service for elderly people. An analysis of elderly people's (daily, weekly, monthly, and yearly) routine reveals that eating and sometimes meal preparation are perhaps the most recurrent activities in elderly people's individual and social life. Eating not only is about nutrition, but also offers a social opportunity to meet friends and family. In addition, meal preparation is often a sort of "social ritual," as well as an activity in which elderly people can exercise their residual capabilities.

The existing meal service is based primarily on functional criteria, which suggests an efficient but rigid structure for the service. The meal elderly people receive everyday consists of a variety of dishes, but they are ready to eat and must be consumed within a few hours. An alternative that would also reduce isolation for elderly people living in their own home is to have some food that can be made ready for friends or grandchildren coming to visit them.

The analysis of elderly people's daily routine and some ethnographic insights revealed that many people are still fully capable of preparing their own meals and are willing to do so. Others have lost some of their skills, mainly related to fine motor skills (e.g., peeling potatoes or carrots), but they have a passion for food preparation and would be glad to use their residual skills for that; finally, other people are still able to cook but are not strong enough to walk to the supermarket for shopping.

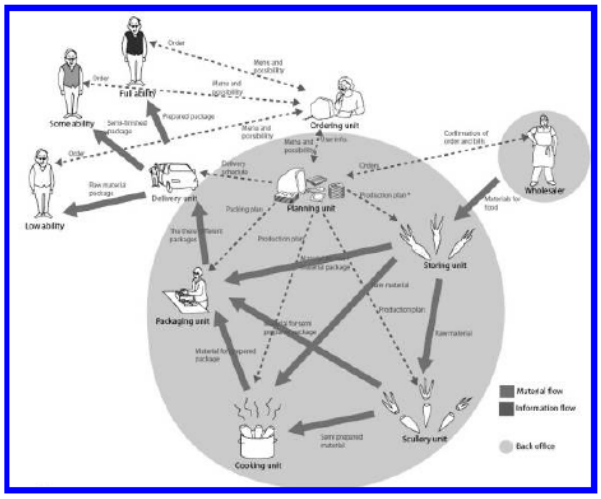
The *Delight Assist* project started from the assumption that the process of meal preparation and consumption can be disassembled into different modules, including shopping/ordering food preparation of the ingredients, cooking, and, of course, meal consumption. Elderly people may decide to retain their independence with respect to some of those modules, but they may want to outsource other functions that exceed their present capabilities.

The new service can provide prepared meals (as in the existing service) or a combination of semi-finished ingredients (e.g., peeled potatoes) or just the raw ingredients. This concept is able to use the residual capabilities of elderly people at different levels, while passing on the other competences to other local actors (a central kitchen or local food providers) (Figure 1).

The Design Challenge

The challenge for designers in this case consisted of *disassembling* the meal production and consumption process and recomposing it in a modular structure; this challenge can be compared with a *reverse engineering* project. The modular structure created with this project also makes it possible to involve local producers (groceries) or new actors (service units to process semi-prepared food), thus

Figure 1
Modularization of the meal service



activating local resources. However, unlike the most common reverse engineering exercises, the starting point is not a complex technological artifact but a part of people's life. For the service to be effective, designers need to consider elderly people as part of the production system, thus including their behavior, daily routine, and capabilities as variables in the production process. For this reason, the service architecture represented in Figure 1 has been disassembled in a series of use cases, in which a detailed description of customers' behavior was linked with a description of the behavior of the whole production system in the back office (Figure 2).

Another problem arising from this case concerns the need for designers to use appropriate communication and representation techniques to include elderly people as co-producers of the system. Unlike products, whose status is perfectly defined before they come in contact with users, services are co-produced by the customers, which means that an appropriate communication channel must be used to address customers' behavior in the co-production of the service outcome. Several kinds of representation techniques are being developed, including graphic representations, clipscapes, and video sketching (Lahlou, Jegou et al.; Morelli and Tollestrup 2007), to increase the level of participation of users in the design process.

A Meal Delivery Service for Workers in the City Centers[3]

Active labor market policies in Denmark and Scandinavia are based on an approach aimed at enhancing unemployed people's residual capabilities (Esping-Andersen 2002). This approach, often labeled *active welfare* (Møller 2002; Sabel and Zeitlin 2003; Vandenbroucke 2003) or *open welfare* (Cottam and Leadbeater 2004), makes it possible to decrease peoples' level of dependence on the welfare system, thus encouraging their re-integration into the labor market.

3 This project was developed with the cooperation of Prof. Wolfgang Jonas, University of Kassel. A more detailed explanation of this project has been provided in Morelli, N., W. Jonas, et al. (2008). *Product Service Systems and Non-Market Oriented Approach—Methodological and Ethical Considerations from a Design Perspective*. Changing the Change, Design, Visions, Proposals, and Tools, Torino, Italy. and Jonas, W., N. Morelli, et al. (2008). Designing a product service system in a social framework—methodological and ethical considerations. *UNDISCIPLINED! Rigour in emerging design disciplines and professions*, The 2008 DRS Conference. Sheffield, UK.

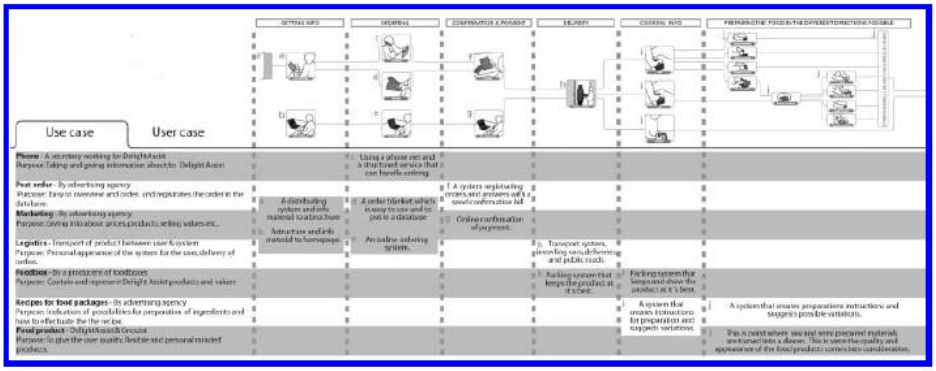


Figure 2

Use case: the front office is represented as a scenario, whereas the back office of describes the behavior of components in the back-office for each phase of this scenario.

Some of the initiatives of Fokus Folkeoplysning (FF) can be framed in this context. FF is a Danish organization that provides vocational education programs. FF´s initiative in this area consisted of a program to employ people with different social and behavioral problems in business activities to give them an opportunity for learning new skills that can help them become integrated into the labor market. Furthermore, FF's goal is to aim for higher levels of occupation and employment for unemployed people (whereas government activation schemes focus on occupations that require very low-level skills). In the past, the organization created a café, which was in most aspects similar to any other café. Here, however, unemployed people have a regular working routine and a continuous social contact with clients.

The new service proposed in collaboration with A&D and the University of Kassel is a meal delivery system for people working in the central areas of a city. The project has been named *Frokost kurerer* (The Lunch Couriers). Businesses in these areas can rarely afford a canteen for their employees. Their employees must buy their own lunch and often have very limited choices, influenced by reduced time and dietary factors. The new service is meant to connect them with meal providers—small cafés and restaurants offering good quality food—to satisfy their needs and optimize the time for their lunch break. The service will serve a limited area of the city and use bicycles as the only means of transportation. As in the café, the service will employ people who have low employment capabilities to serve in five main functions: logistics, payments, IT, delivery, marketing/PR, and bike repair (in total about 15 people). The cost of the service is meant to be very low ("as much as sending a postcard"), compared to the normal cost of the lunch, decided by the meal provider. The meal providers, in turn, will contribute to the service with a small fee for each meal. The local government is paying the salary (the normal unemployment benefit, plus a small activation contribution), plus a small amount of money per employee to support the service.

Table 1

	Scenario 1 Frokost kureren	Scenario 2 Couré	Scenario 3 Bike the lunch	Scenario 4 Kolibri
Logistics				
Delivery				
Payment				
Marketing/PR				
Bike maintenance				

The Design Process

The design process consisted of three main steps, analysis, projection, and synthesis, according to the generic model suggested by Jonas (Jonas 2007; Jonas, Morelli et al. 2008).

In the **analysis** phase, sensitivity analysis (Vester 1999) was used to create a systemic model of the situation by building an effect system out of the situation's relevant factors. The analysis identified active, reactive, critical, and neutral variables involved in the project, and then, on this basis, the **projection** phase used some of the critical variables to generate a map of extreme contextual states, or scenarios (Figure 3).

In the **synthesis** phase, four scenarios ("4 stagioni" method) were developed (Figure 4). Each scenario defines a business concept on the basis of the most critical factors (logistics, delivery, payment, marketing/PR and bike maintenance) identified in the sensitivity analysis.

Each concept, identified with a name, defines a platform of actors, interaction, information flows, and business flows that needs to be defined in detail. The requirements are therefore organized on the basis of the five activity fields described in Table 1.

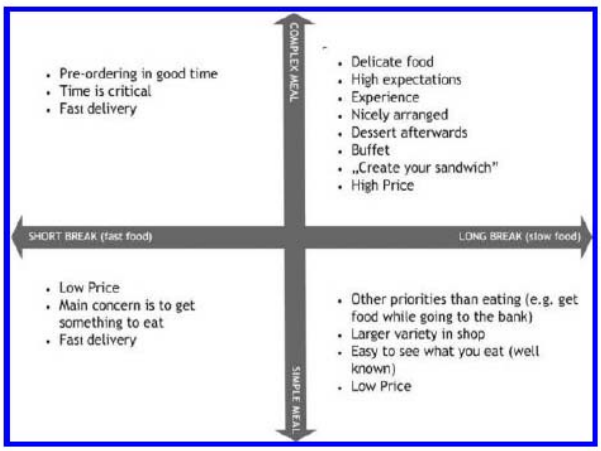
Logistic aspects depend on bicycle transportation and customers' expectations about delivery time. Such aspects include the identification of a *served* area, the number of food providers that can be associated with each of the four concepts, and the number and efficiency of the couriers. (The project does not assume the courier to be in perfect physical shape every day, because the personnel are supposed to be chosen among people with low employment capabilities.)

Delivery aspects include ordering time, food choice (more variety can affect delivering time), and the collection of food from local shops or restaurants.

Payment-related aspects arise because delivery people should not have the responsibility of collecting the payment. This division of responsibility has several implications about how the payment system is organized.

Marketing/PR aspects require different skills than delivery people tend to have. Marketing and PR functions tend to require that more attention be given to strategies that address customers' expectations and to the interaction between customers and delivery people.

Figure 3
Different scenarios for the service



Bike maintenance: The service has its own bike repair workshop that should also be able to provide assistance in case of emergency.

Concept Development Tools

A progressive definition and detailing of the service, starting from the broader frame outlined in the four-scenarios, is organized to address different design aspects:

The development of a modular architecture for the service;
The analysis and design of time-related aspects;
The organization of an efficient system configuration on the basis of a high variation of individual choices; and
The organization and design of infrastructural elements of the system.

A modular architecture. The methodological approach used for the organization of local activities and the exploitation of local potential is based on a modular architecture, in which each module refers to an autonomous actor (e.g., meal providers, individual customers, or groups of customers working in the same office). Each actor holds the knowledge needed for providing a part of the service. The main organizational task is to generate a *solution platform* that allows for multiple solutions by specifying sequence of events, interaction among modules, and physical and financial flows. These solution platforms allow for a distribution of *engineering power* among the modules of the platform. Each module is appropriately designed and organized at the local level (e.g., each food provider autonomously decides its offering), while the system organizer negotiates the connection of the modules through an appropriate modeling activity that simulates the behavior of the system in time

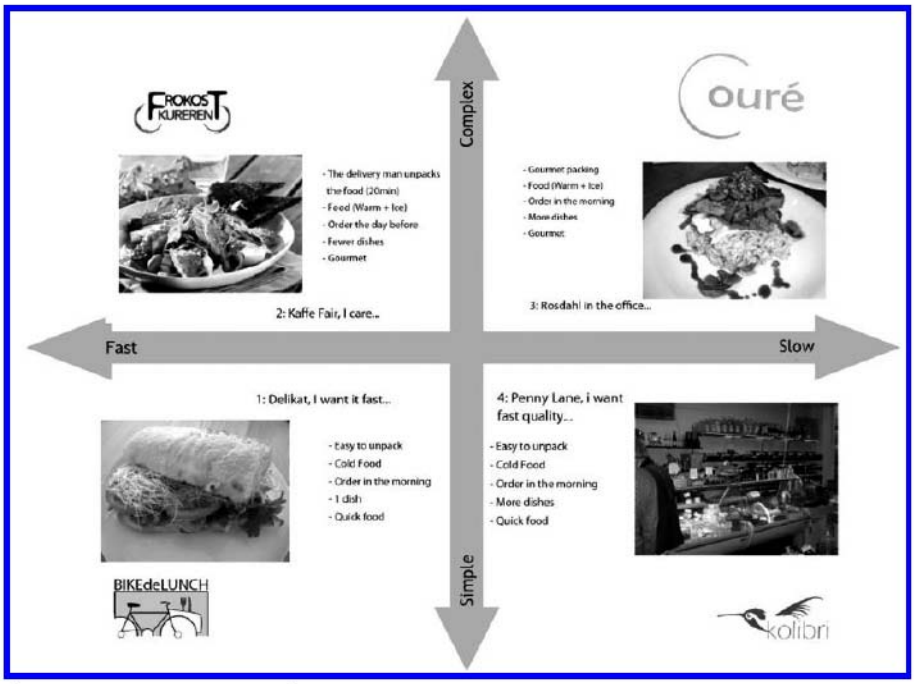


Figure 4
Overview of the four concepts deriving from the 4 stagioni method

and space. The system organizer should also coordinate the essential support activities, such as time plans, bicycle transportation, a website for ordering, and daily menus.

Addressing time-related instances. As with architectural design, the concept development process can start from a larger scale (platforms), and, in a second phase, details (e.g., products and interactions) can be articulated. Unlike architectural design, however, the details in service design cannot be based on synchronic representation because of the critical relevance of time sequences and events in phases, such as logistics and delivery. The whole system must be organized around a very short "time window" for delivery: lunchtime. Many critical processes in the services are concentrated in about one hour and must be represented in detailed time sequences. An event-based method, such as use cases, can effectively address time-related instances of the service (Morelli 2002). Each use case represents a simple instance of the service and focuses on a specific actor (e.g., the courier, the customer, the IT unit). The time sequence specifies each phase of the service and elicits requirements concerning the actor's experience (front office) and the system behavior (back office). Finally, use cases facilitate the coordination between individual time plans.

Planning variation of individual choices. The focus on highly individualized solutions requires that different scenarios

be defined that address individual choices. The scenarios consider different actors' behavior and different organizational instances and emphasize their implications on the system. Scenarios are particularly relevant in the organization of meal ordering. Individual preferences could be combined (thus creating cumulative orders from people working in the same building, or people with the same dietary requirements) with organizational instances (e.g., the availability of meals or food providers that satisfy that choice). By grouping these instances, different ordering scenarios can be adequately addressed that improve the efficiency of the service.

Planning the infrastructure. Use cases and scenarios bring the development process to a level of definition that is adequate for the specification of the material tools and the technological elements that support the service. In this case the service is not supposed to introduce any particular innovation at the product level: bicycles, communication tools, and personal equipment are off-the-shelf products; minor adaptations are required (e.g., bicycles, packaging, invoice system) to facilitate delivery logistic and payment-related requirements.

The Challenge

The project's approach to social innovation is based on the direct participation of local actors in the development of innovation processes. The project is supposed to generate a broad structure in which FF organizes the practical and operative aspects of the service. The assumption is that local actors (i.e., providers and customers) have context-specific knowledge for generating local solutions. This kind of knowledge is often hard to transfer to system developers. Rittel (1984) characterized this situation as a *symmetry of ignorance:* knowledge is asymmetric–users are domain experts who understand the practice (i.e., they know implicitly *what* the system is supposed to do), and system developers know the technology (i.e., they know *how* the system can do it).

Transferring the responsibility for developing the system directly to users makes it possible to capture essential knowledge that is critical for the development of highly contextualized solutions. However, this approach also reduces the possibility that these initiatives can be reproduced in different local contexts. Thus, many of the initiatives developed this way remain isolated cases, and little possibility exists for their broader diffusion, notwithstanding their high potential to offer concrete solutions to present crises of welfare systems. Therefore, an important research question arising from this context is whether these initiatives can be totally or partly transferable.[4]

The reproducibility/transferability of these initiatives might be possible using forms of *codification* of the knowledge needed for their planning and development. Codification implies the modular-

4 The debate regarding the question of transferability in design research is just beginning. See for example Chow Chow, R. (2006). Transferability—A Wonder on the Ground of Design Research. *Wonderground, DRS 2006*. Lisbon.

ization of the most relevant components included in a project (related to knowledge and processes) and a certain level of standardization of such modules. In this sense, codification implies a reduction of the qualitatively complex characteristics of local solutions into a simpler but nevertheless more reproducible solution that could generate economies of scale or scope.

The code to develop in this case includes all the organizational knowledge related to the project components, the modules, and the interaction among them. Its reproducibility depends on the capability of local actors to understand and use it to generate their own context-related solution.

Facebook Without Facebook: Redesigning the Core of an Online Community[5]

Until a few decades ago (and in a few cases even now), the social cohesion of local community was based on a *thick layer* of links, based on common interest, trust, shared stories, solidarity, and collaboration. Historically, this network of relationships has been built within specific geographical contexts (e.g., the neighborhood or the small town) or on familial links. The geographically located communities created through these links establish the identity of a place. In fact, such links were not just a cultural characteristic of a community but also a functional and economic factor that supported economic systems. In many cases, such links were strong and reliable enough to become the ground for welfare policies, as happens especially in southern European countries (Esping-Andersen 1996). An economy based on such links has been defined as an *informal economy* because activities in such economic systems often are based on local and informal links between people (Normann 2000). Such systems present little need for a contract, or specific performance indications, and no economic quantification is needed for these informal mechanisms to work efficiently.

Toward the end of the twentieth century, however, the prevalence of progressive market logic and more stringent time arrangements in work patterns, as well as the massive influx of women into the workforce, created a shift from informal arrangements to formal activities, provided by new actors in the marketplace. This shift from an informal economy to a formal pattern of market-based relationships decreased people's reliance on their own social networks and, more generally, on the capability of informal links to provide solutions to everyday problems. The cost for this shift is being paid by some parts of the population, among which are elderly people, who used to have a central role in traditional society but now are at risk of being marginalized as a social problem.

The advent of the second generation of internet applications—in particular social networking applications—is promising to recover part of the social cohesion in the local context that was undermined

5 This project has been developed by a group of students at A&D as a master thesis in Industrial Design. The logical framework for this project is the *life 2.0* research project, which aims at combining new technology and social networking applications to support elderly people as they seek to live an independent life. The author wishes to thank Maria Winther Kristensen and Irune Gonzales, who have enthusiastically and efficiently worked on this project and allowed the author to publish the results.

by the predominant intervention of market forces in our social and economic systems. The new social networking applications are indeed supporting new forms of solidarity, trust, and cultural cohesion, creating new links based on logical and emphatic proximity. Furthermore, these applications increasingly are used in relation to specific local contexts. Facebook and Twitter, for instance, are two of the most typical social networking applications. Although the two applications have been designed to overcome the limitations of local contexts—in fact, they have been created to connect people living in different parts of the world—they are often used to inform friends about local events and to invite them to visit new places. Other applications that are more closely related to geographical contexts (e.g., Google maps) are often used in combination with social networking applications.

The new social patterns are not just a slavish copy of the traditional social patterns that dominated local contexts in past generations; the old mechanisms of trust and social interaction cannot be automatically replaced by these applications. This irreplaceability is particularly apparent when the new IT-based applications for social networking are to be used by people, such as the elderly, who are not familiar with the new applications and are diffident toward technology. Although young people have been exposed to the new applications almost since birth, elderly people often consider computer screens and keyboards to be a barrier to communication. Nevertheless, the social mechanisms that have been almost spontaneously developed using these applications are very close to the mechanisms that supported social cohesion in local contexts in the early days. Furthermore, the activation of these mechanisms in local communities can be used to support elderly people as they seek to maintain an independent life, giving them more links with their neighbors, family members, and friends.

For this reason, A&D and the national association of elderly people in Denmark, Ældresagen, have collaborated to explore the possibility of redesigning such mechanisms. The intent is to reduce their dependence on the technological infrastructures that allow or require their use on the Internet. This redesign exercise again consisted of *reverse engineering*, this time applied to social networking applications.

Social networking applications can be seen as a construction based on overlapping layers: from the physical infrastructure (i.e., computers and every product that gives accessibility to the Internet), to a communication infrastructure (the Internet), to a social layer (including the pattern of social connections among people communicating on the Internet). A reverse engineering process for this phenomenon would start from the third layer, in an attempt to disassemble, isolate, and reproduce the social mechanisms generated in online social networks. The reference to a specific local context would make it easy to recognize and compare the social elements

that a new social network has in common with older, local cultural patterns. This understanding of social mechanisms should allow for a process through which further technological complexity can be added—a process of co-design with elderly people that can make new technologies more accessible and give elderly people a sense of ownership of the new services.

With the expectation that this process could be fruitful, a group of students worked together with some elderly people to propose activities that create social aggregation. The first meetings between the designers and seniors generated a list of activities around which elderly people could build new forms of collaboration, including the following:

- **Giving help** – a local *e-bay* of favors exchange
- **Storytelling** – cooperative writing of local histories
- **Activity calendar** – an open list of upcoming events
- **Buddy system** – expert tutoring for learning or being introduced to new activities
- **Sharing interest** –exchanging information about individual interests
- **Good and bad** – personal evaluation of events, services, products, movies, etc.

Only one of these activities already had a previous arrangement. Storytelling was happening through a spontaneous initiative of a group of people at Ældresagen, who were meeting together periodically to write stories about the past.

After the meeting, the designers started a first simulation of the activities to develop a series of rapid prototypes (i.e. rough working models) of services that could support such activities. Although the rapid prototypes were initially very rough, they have been progressively improved and adjusted. Each prototyping stage provided support to a following stage of prototyping, testing, and co-production.

Local Bulletin Boards

The first stage of prototyping included some examples, such as the short stories of the past written by the group at Ældresagen. To stimulate local interaction among elderly people without forcing them to use unfamiliar technologies, the examples and brief descriptions of the other activities mentioned were posted on a number of bulletin boards placed in two locations: at Ældresagen premises in Aalborg and at an activity center for elderly people in a small town near Aalborg. The experiment aimed at simulating the mechanisms of aggregation and cooperation of people around common interests and collaborative activities.

Each bulletin board had a headline and an explanation of an activity. Some examples were used to stimulate participation. A pile of blank cards was placed close to the bulletin boards to encourage

other seniors to write their own contribution and start a process of collaboration. The participation started very slowly, with no response to the invitation in the first two weeks. However, the participation increased later, as people consistently contributed their own stories, especially in the activity center.

Guided Use Cases

Although the bulletin board is an effective tool to raise awareness of local initiatives, a service for elderly people should be supported by multiple opportunities for interaction and, most important, should define and provide a platform for communication and collaboration.

To define the quality and the details of the interaction between elderly people and the platform, a series of co-design sessions was organized, in which individual senior people were asked to create use cases describing the way they would like to access this service and communicate with other people. The technological possibilities for developing the systems were described on cards, giving participants the opportunity to organize their ideal services on the basis of different forms of interaction. Each card visualised a technological or practical option. The choices included very low-tech communication channels (e.g., postcards, bulletin boards, leaflets), technologies that are already familiar to elderly people (e.g., phones, mobiles, sms), and technologies that are gradually making inroads into the lifestyles of elderly people (from email to social networking applications). A reference to the local context was also specified using maps that allowed people to relate their use cases to their routine and their neighborhood.

Acting The Interaction

Once defined, the use cases became the basis of a more intense prototyping activity that included the simulation of the interaction by elderly people. This simulation made it possible to improve the co-design process by emphasising new aspects emerging from a "real life" case. To reduce the sense of inadequacy that elderly people can have in front of a computer screen, researchers created a fake screen by placing a paper screen over a real laptop. The tester interacted with this screen using an arrow on a stick in place of the mouse pointer. The researchers then manually changed the screen configuration according to the users' choices. Although slow, this simulation gave the elderly testers a better idea of how the service could work and a stronger sense of ownership over the potential service.

Other simulations focused on the way elderly people contact each other to undertake a certain activity. Here, two people acted out the situation (ringing to each other) and provided feedback on each detail of the interaction that needed to be designed.

Video recording of such simulations can be used for illustrating the prototype to potential users of the service, so that they can figure out a use scenario and be motivated to participate.

	Localizing	Networking	Distributing
Delight Assist	**Reproducibility:** modular system makes it possible to identify providers (groceries/ processer) in the local context	**Subdivision of labor:** elderly people are executing part of the meal production process (and possibly making food for each other) **Codification:** The meal production/ consumption process is divided into modules Special attention on user instructions	**Subdivision of labor:** allowing elderly people to be more active reduces their level of dependence on assistance services. **User focus:** elderly people are supported in their aim to use food as a means of social interaction
Frokost Kureren	**Reproducibility:** Modules (restaurants/shops) can be identified in different local contexts. **Reproducibility:** identification of critical factors for defining design scenarios **Subdivision of labor:** local shops/restaurants organize their menu independently	**Subdivision of labor**: direct orders from local shops/restaurants allow for flexible offering and short production chains. **User focus:** users are given more choices about their lunch.	**Subdivision of labor:** meal production is distributed among local producers **Reproducibility:** once the architecture is defined, new meal providers can be added and the service can be proposed in new contexts.
Facebook Without Facebook	**User focus:** focus on mechanism of social cohesion at the local level **Codification**: *reverse engineering*: comparing Web 2.0 social mechanisms with existing mechanisms of social cohesion	**Codification:** creation of a mechanism to circulate tacit/ latent knowledge, even without codifying it	**Subdivision of labor**: dependency from healthcare system is partially replaced by mutual help and social cohesion

Table 2
The methodological criteria of the three projects are compared with the strategic objectives.

The Design Challenge

Rather than codifying and formalizing implicit and latent knowledge between elderly people, this project tried to recreate the mechanisms that circulate such knowledge and to create a platform that supports such *horizontal* networking. Researchers did so by *reverse engineering* the mechanisms of social interaction happening in Web 2.0 applications. The challenges in this case were in the nature of the process—reverse engineering applies to technologies, whereas Web 2.0 applications consist of a mix of technological and social mechanisms—and in the target population's lack of familiarity with those technologies.

The activity of rapid prototyping was considered to be the most adequate means to address both these challenges. On the one hand, it allowed for a simulation of social mechanisms and the consequent registration of the activity as a design input; on the other hand, it allowed for a progressive introduction of elderly people into technological mechanisms to give them a sense of ownership of the new technology. A plot of participative activities was organized in

which elderly people could find their own motivation to implement a system. The different interaction channels (i.e., bulletin boards, testing, and use cases) were running in parallel and brought about different levels of involvement of people in the project, different reactions and response times, and different approaches to novelty.

Conclusion

The three projects reported in this paper are heterogeneous in their nature, in the detail of their approach, and in their aims:

- The *Delight Assist* project focused on the *engineering* aspects of the system—those aspects that make sure that customers' behavior is addressed and supported by an opportunely organized *back office* system. The aim of the project was to suggest new and more flexible forms of industrial production.
- *Frokost Kureren* focused on the creation of scenarios on the basis of some critical parameters and the organization of different systemic concepts according to those scenarios. The aim of the project was to work on the question of reproducibility of local systems and design scenarios.
- *Facebook Without Facebook* focused on social mechanisms generated by new social networking applications. The aim of the project was to isolate such mechanisms in local contexts and reproduce them beyond the barriers generated by the lack of familiarity with technology.

Meanwhile, all these projects also have some common traits that concern both strategic aims and methodological criteria. All of them address some of the main strategic challenges presented by sustainability: the need to generate local systems, to activate and connect local resources, and to create solutions by distributing decision and production power. Although all the cases have in common a direct or indirect government support, the role of the central government is quite marginal. The organization and management of the initiatives is the responsibility of local actors (Hjørring Central Kitchen, Fokus Folkeoplysning, and Ældresagen). The strategic framework for such an organizational structure is inspired by the principle of subsidiarity, promoted by the European Union (EU 2002), and implemented in welfare strategies in several countries (Vandenbroucke 2003). According to this principle, problems should be resolved by the lowest, smallest, or least centralized competent authority.

In all three projects, a methodological approach has been used that derives from designers' cultural and logical links with industrial production. In Table 2, the methodological criteria of the three projects are compared with the strategic objectives.

The description of the projects and the summary in Table 2 emphasize the extreme complexity of a landscape in which different

strategic aims can be combined with different methodological criteria. These examples demonstrate how the challenge that sustainability poses for designers is still in a very fluid phase—a phase in which neither the strategic frameworks nor the way to address problems and opportunities proposed within those frameworks are perfectly defined. The question of sustainability is still far from proposing consolidated patterns, behaviors, and strategies. Beyond the obvious uncertainty that this situation implies, the fluidity emerging from these cases suggests interesting social innovation opportunities for designers, industrial companies, and institutions.

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The Instituto de Arte Contempranea: The First Brazilian Design School, 1951–53

Ethel Leon

In the history of Brazilian art, 1951 is remembered for the São Paulo Biennial at which Max Bill took the major international award for his *Tripartite Unity* version of the Moebius strip in sculpture. A few months previously, the opening of Bill's exhibition at Museu de Arte de São Paulo (MASP) had marked the beginning of the Industrial Design course at Instituto de Arte Contemporânea (IAC); he had become a figurehead of the modernist artists gathered around the MASP and the Brazilian Concretism groups emerging in São Paulo at that time. Writing in *Habitat* magazine, graphic artist Leopold Haar noted the new "aesthetic requirements of men who use refrigerators, are familiar with sulfa drugs, and are contemporaries of Max Bill."[1] Also in 1951, the first International Design Conference was held in Aspen as a "forum in which design was seen as an integral part of *good business*." The design world was going through an intensive experience of this split between a libertarian artistic ideal (Bill) and the notion of design as business.

Perhaps this split was somewhat inevitable, given the aftermath of the Second World War, compounded by the effects of Cold War—like conflicts in Korea and other countries. The split was reflected in cultural activities everywhere. Brazil's variant of "the American way of life" consolidated and was propagated by American movies, music, and museological policy. In particular, new consumer goods were now available for those who could afford them. Blenders, mixers, radios, and fans were, for the first time, being manufactured locally. Refrigerators and automobiles, which had previously been imported and showcased in magazines, were soon being produced in Brazil, too.

After several years of dictatorship under the *Estado Novo* regime, Brazil's new post-war democracy was closely connected to America's political power. São Paulo experienced rapid growth and industrialization, and it became culturally metropolitanized.[2] Access to consumer goods and material affluence became synonymous with democratization, in contrast with the pre-war period in particular, as the West boasted of its abundance compared with the Soviet bloc's scarce and shoddy consumer goods.

Brazil's modernist architecture was featured in public works and in high-end homes, too, which provided an opportunity to introduce items attuned to new visual standards. For example,

1 Leopold Haar, undated, *Habitat* 5:57.

2 See Aracy Amaral, *(coord.). Projeto Construtivo Brasileiro na Arte*. (Rio de Janeiro: Museu de Arte Moderna/São Paulo: Pinacoteca do Estado, 1977); José Carlos Durand. *Arte, Privilégio e Distinção. Artes plásticas, Arquitetura e classe dirigente no Brasil 1855–1985*. (São Paulo: Editora Perspectiva, 1989); Maria Cecília França Lourenço. *Operários da modernidade*. (São Paulo: Hucitec/EDUSP, 1995) and Maria Arminda do Nascimento Arruda. *Metrópole e Cultura*: *São Paulo no meio século XX*. (São Paulo: EDUSC, 2001).

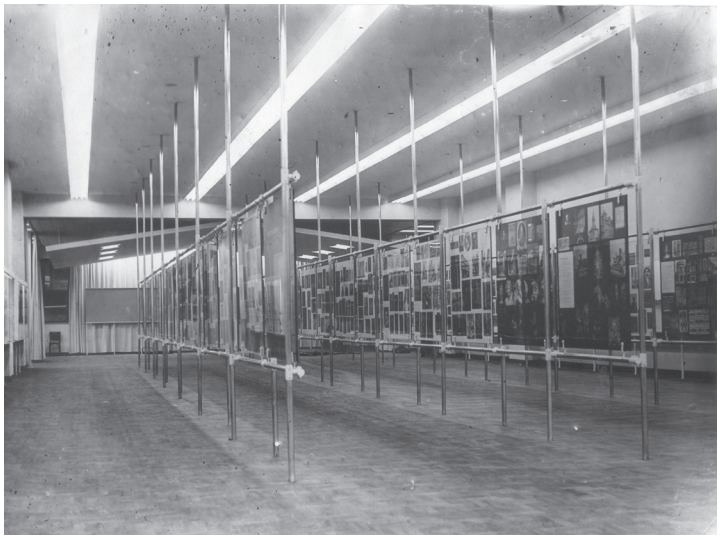

Figure 1 Tubular Panels
MASP built innovative metal panels to show the exhibitions, rather then the traditional practice of mounting the exhibits to the walls. Photo courtesy of Library Documentation Center of the Art Museum of Sau Paulo, Assis Chateaubriand.

furniture makers—among them Europeans who emigrated to Brazil in the post-war period—came from a wide range of social backgrounds and with different political and cultural ideas.

São Paulo's new art museum, MASP, was closely related to these young, well-educated immigrants with modernist backgrounds and was part of this cultural *aggiornamento* irradiating international architecture and design. MASP was founded in 1947 by media magnate Assis Chateaubriand, whose conglomerate introduced television to Brazil and who was a powerhouse for Brazil's nascent cultural industry in the 1950s. Authoritarian methods based on blackmail, patronage and federal government largesse were part of his crusade to modernize Brazil, as was the arm-twisting applied to other businessmen and people in government. Collectors were pressured into donating works to the museum.

Chateaubriand designated Pietro Maria Bardi as director of the MASP. Bardi was an Italian art dealer and critic recently arrived from Italy, where he had advocated modernist architecture in the ranks of the Fascist movement; he had also married a young architect named Lina Bo Bardi, a Communist who had been an active opponent of fascism in Italy.[3] Bardi was thrilled by the idea of building a new museum more along the lines of New York's MoMA than of European institutions. Chateaubriand the Oligarch, Pietro Bardi the Fascist, and Lina Bardi the Communist made up an unlikely coalition to run an art museum (Figure 1).

The new museum was inaugurated in 1947 and by 1948 was staging an exhibition of chairs featuring models made by the Austrian company, Thonet—a paragon of design history. Some two years later, Bardi's exhibition *Vitrine das Formas* (literally "showcase of forms") amounted to apologetics for the universal need for objects of high formal quality. Antiques were placed alongside an Olivetti typewriter designed by Marcello Nizzoli (Figures 2 and 3).

3 cf. Fernando Morais. *Chatô, o rei do Brasil: A vida de Assis Chateaubriand, um dos brasileiros mais poderosos do século XX.* (São Paulo: Companhia das Letras, 1994) and Francesco Tentori. *P.M. Bardi.* (São Paulo: Instituto Lina Bo e Pietro Maria Bardi, 2000).

Figure 2 (right)
Window of Forms
Created by MAPS director and showing the high quality of craft, artistic, and industrial design items.
Photo courtesy of Library Documentation Center of the Art Museum of Sau Paulo, Assis Chateaubriand.

Figure 3 (left)
Detail of Window of Forms
Italian Industrial design shown along side antiques.
Photo courtesy of Library Documentation Center of the Art Museum of Sau Paulo, Assis Chateaubriand.

A list of exhibitions held by MASP in its early years shows the director's aim of helping to modernize public taste. Le Corbusier, Richard Neutra, Max Bill, Saul Steinberg, and Alexander Calder were among guest artists featured in temporary exhibitions at the MASP.

A spate of educational activities followed, and Bardi decided to open an industrial design school: the IACAn undated Bardi manuscript notes:

> Museu/Instituto de Arte Contemporânea Program:
> The Institute of Contemporary Art is an initiative of São Paulo's "Art Museum." Its purpose is to boost research in the field of the applied arts. Its approach will be distinctly contemporary. It will provide guidance for industrialists, so that household objects in common use may reach a higher aesthetic level in tune with the current period.

Like the Bauhaus, the IAC would have a compulsory, one-year preliminary course for all students. The program would consist of art history, notions of architecture, and theory of form, with classes in geometry, space theory, color and light theory, properties of materials, composition, and construction theory. The course also would provide practical lessons in drawing from nature and contact with/research into materials, as well as in modeling, construction, and use of colors. Students would then have a year of so-called "specialization" workshops on stone, wood, metal, ceramics, glass, tapestry, and weaving. A graphic arts and photography

workshop was also planned, with classes on composition and typesetting technique, advertising, layout, poster design, engraving, and photography. In addition, three supplementary courses were planned: reinforced concrete, to be taught by Pier Luigi Nervi, garden architecture, by Roberto Burle Marx, and acoustics in architecture, by Rino Levi.

Bardi's decision to found the IAC might have been based partly on his critical view of the taste of São Paulo's elite. If they were not educated in modern taste, how could they become patrons for MASP? Chateaubriand would have to continue practicing extortion to bring them into line.

As they were advocating the new school, Pietro and Lina Bardi also founded *Habitat* magazine, which fought the prevailing eclectic taste for decoration and preached industrial design with objects made for the machine age. In October 1950 *Habitat* magazine contained a humorous aside about decorators. After that, *Habitat* regularly published critiques of items sold in the city's stores for interior design:

> Protest march
> Supposing the paintings, lighting, ornaments, and carpets seen in most bourgeois living rooms were to suddenly come alive and organize a protest march. The streets would see a parade of bad taste that would be a mortal fright for onlookers.[4]

The role of the IAC was to combat this state of affairs.
Bardi wrote:

> The idea now is to provide well-directed artistic education to educate specialists, with a vision of the arts as a whole, as part of an organic conception.
>
> In a nutshell, by working for fully-fledged collaboration with industry, the IAC was to boost circulation of new ideas and developments in the aesthetic field, which was wrongly seen as an "ivory tower" for the initiated, so that the achievements of art, tradition, and culture would be generalized as much as possible.[5]

Some 200 young people applied to take the new course, and 23 students were selected. IAC professors included Jacob Ruchti, Lina Bo Bardi, and Oswaldo Bratke, all leading figures in Brazil's modern architecture. Also teaching were the Italian painter, Roberto Sambonet (later to become a designer), Mansueto Koscinski, a botanist who taught the use of wood, a print producer for Chateaubriand's newspaper, and many Brazilian and Italian artists, as well as French sociologist Roger Bastide. Pietro Maria Bardi was a professor too, and the prime mover behind the course. He admired the work of the great figureheads of European design: Peter Behrens, Max Bill, Alvar Aalto,

4 *Habitat*, (Elsevier) 4:90.

5 Bardi, Pietro Maria, undated manuscripts, (Masp).

László Moholy-Nagy, and Walter Gropius; he also favored the modern architect, Frank Lloyd Wright, and Raymond Loewy, representing what was called styling in America.

The IAC's leading professors kept abreast of current trends and were in contact with American design schools, subscribing to magazines such as *Look*, *Fortune*, and *Arts and Architecture*, and to Tomás Maldonado's *Nueva Visión* in Argentina. Writers and contributors to these publications included László Moholy-Nagy, Vance Packard, Lewis Mumford, Wasily Kandinsky, Walter Gropius, Sigfried Giedeon, Charles Peirce, and Marshall McLuhan. Gio Ponti, who had worked with Lina Bo in Milan, also gave lectures at the school.

Bardi arranged the industrial design course so as to cultivate relations with the field of fashion. He organized a parade for Maison Dior, a course on prints was taught by Luiza Sambonet, who saw the need for Brazil's textile industry to foster locally created design, and Bardi's curriculum included special fabrics and clothing models based on pictorial elements, some of them designed by Roberto Sambonet. Moreover, Bardi opened the school of advertising in the same year that he offered the industrial design course, showing a vision for a school of design that was quite original at that time. He emphasized both industrial aesthetics and "décor" in the form of industrial products. There were ethical traits, too, in this machine-age concept of beauty. In his view, "the aesthetic beauty of a refrigerator may be used as an example to clarify our thoughts."[6]

Although the museum's director had high hopes that Brazilian industrialists would build close relations with the IAC, only two companies did so: Lanifício Fileppo and Cristais Prado.

Despite the efforts of the museum's team, the IAC closed at the end of 1953, with the remaining students from the 1951 and 1952 classes brought together in a single class. Although the first class was to progress to its fourth year in 1954, working on a sort of final-year thesis guided by an advisor, this plan did not happen. Bardi complained of the lack of financial and operational support from both business and government. "The design school did not last three years. A special agreement with São Paulo's municipal government was not sufficient to ensure funding."[7] Former student Luiz Hossaka believed the design course closed because Bardi realized that there would not be enough work for five designers.

Significantly, the advertising school founded in the same year as the IAC (1951) did manage to get off the ground and is still there today, known as Escola Superior de Propaganda e Marketing (Higher School of Advertising and Marketing). Bardi, seeing design and advertising as related activities, was deeply disappointed at having to shut down the IAC:

> Many are the tasks involved in design. Just think of printing, photography, fashion, set design, TV commercials, and many other activities. A substantial field in quantitative terms,

6 *Habitat*, (Elsevier) 8: 90.

7 Ethel Leon. *Memórias do Design Brasileiro*. (São Paulo: Senac 2009).

8 P. M. Bardi, *Excursão ao território do Design*. (São Paulo: Banco Sudameris do Brasil, 1986), 14–6.

highly valued by advertising specialists, who must be seen as visual communicators.[8]

Relations with Chicago and Dessau

IAC's industrial design school produced several documents proclaiming its direct descent from Bauhaus-Dessau and Chicago's Institute of Design, often mentioning the names of Walter Gropius and László Moholy-Nagy.

> Then came the well-known "Bauhaus" with Gropius, Breuer, and others; this industrial design school created innumerable new solutions familiar to us today, such as steel-tube chairs, steel furniture, etc.. Americans later continued and developed this experience at Chicago's Institute of Design, headed by Moholy-Nagy, a former Bauhaus professor.... All these initiatives could not fail to be noticed in Brazil, particularly in Sao Paulo, the great industrial center.[9]

Or, in the words of Jacob Ruchti:

> The IAC's course in São Paulo is an adaptation to our own conditions and abilities from the renowned course at Chicago's Institute of Design, headed by architect Serge Chermayett (sic), and founded in 1937 by Walter Gropius and Moholy-Nagy as a continuation of the famous Bauhaus in Dessau... The IAC therefore represents in São Paulo—indirectly—the principal ideas of Bauhaus, after its contact with American industrial organization.[10]

What the IAC had in common with the Dessau Bauhaus and Chicago's Institute of Design was not so much Moholy-Nagy's educational methods but an approach that sought to establish closer relations with firms, and therefore with industrial rationality and discipline.

The IAC fostered a broad view of design, very likely because of the background of Pietro Maria Bardi, who looked not only to the Dessau Bauhaus and Chicago's Institute of Design, but also to Raymond Loewy, the Franco-American designer who famously coined a phrase about ugly products not being sellable. Former students Alexandre, Wollner, Luiz Hossaka, and Emilie Chamie tell of Bardi's enthusiasm for Loewy, while Luiz Hossaka recalls hearing about Loewy in class:

> I wanted to design cars. I was much influenced by Professor Bardi's telling us about Raymond Loewy, and I saw the importance of well-planned design, which helped me to form this idea. Professor Bardi showed us a slide of a Studebaker. At that time, all the cars in Brazil were American—Fords or GMs. Loewy's work brought out what design meant —Studebakers, Lucky Strike cigarettes, and trains, too.[11]

9 *Diário de São Paulo*, March 8,1951.

10 Jacob Ruchti, *Habitat*, 3:62.

11 Interview Luiz Hossaka, 1/12/2006.

While the Institute of Design of Chicago under Moholy-Nagy and then Serge Chermayeff waged war on *styling*, the industrial design course in Brazil was combining elements that would be anathema to both the American school and the future Ulm school in Germany. Bardi's admiration for Loewy and the industrial aesthetic that dominated the American scene in the 1930s probably harked back to the relations between *styling* and the Italian Futurism he also admired.

In 1950, a year before the IAC courses started, Bardi wrote to several American design schools asking for copies of their curricula (e.g., Akron Art Institute, Black Mountain College, Cranbrook Academy of Art, Rhode Island School of Design, Toledo Museum of Art School of Design). He also wrote to the Museum of Modern Art in New York, asking for suggestions relating to good schools and their curricula. His letters did not omit his support for the Bauhaus.

In 1947, architect and IAC professor Jacob Ruchti visited the Chicago Institute of Design,[12] then headed by Serge Chermayeff following Moholy-Nagy's death in 1946. According to Victor Margolin, the problems faced by Moholy-Nagy, both educational and administrative, arose from his attempt:

> to reconcile his vision of a holistic and humanistic, European art and design education with the pragmatic expectations of the American businessmen, on whose support he depended.[13]

The relationship between the Chicago Institute of Design and business, far from being a peaceful one, was fraught with contradictions that were omitted from IAC documents and from reports from its former students. The IAC's founders painted a rosy picture of relations with the school founded by Moholy-Nagy and entirely ignored any political-pedagogical conflicts between CID and business. The Chicago program provided ideas for the IAC, but the influence did not include the *political direction* that Moholy-Nagy and Chermayeff sought to imprint on CID.

The arguments that arose in Chicago thus were not repeated in Brazil. The IAC sought to absorb the conduct of American designers in terms of their relations with industry and the market in general, but in Brazil the idea of founding a design school did not meet with the same level of interest (not even that of Walter Paepcke in Chicago, as reported by Margolin).

As for the influence of the Bauhaus, it seems to have been a founding myth for the IAC's industrial design school, clearly alluded to in certain documents. In particular, the link was made in relation to a residence at the Dessau school for the painter Lasar Segall, chair of the IAC's academic congregation. An article in the newspaper *Diário da Noite* noted Segall's election as chair:

12 Marlene Acayab, *Branco & Preto. Uma história de design brasileiro nos anos 50.* (São Paulo: Instituto Lina Bo e P.M. Bardi, 1994).

13 Victor Margolin, *The Struggle for Utopia.* (Chicago/London: University: of Chicago Press, 1997) 216.

Figure 4
Curricula at IAC vs. Chicago Institute of Design

Institute of Design, Chicago	IAC
Basic course or self-test **Technology:** Use of tools and machines; materials (wood, clay, plastics, metal, paper and glass); study of forms, surfaces, and textures; study of volume, space, and movement. Art classes, drawing from life, color, photography, mechanical design, lettering, modeling, and literature. Learning and teaching mathematics, physics, social sciences, and liberal arts. Students were not required to undertake practical applications, but just to show inventiveness. **Workshops:** "Crafts" including metal, wood, pottery, and weaving. Photography, animation, painting, and sculpture.	**Preliminary course (compulsory)** **Specialized courses (optional)** **Supplementary courses (optional)** **Preliminary course:** Mathematics (algebra, geometry, descriptive geometry) Perspective Freehand drawing Composition (comprising surface, color-and-light, space, elements of two-dimensional design, elements of three-dimensional form, modeling, and experimental constructions) **Materials, methods and machines, classes** Materials, contact, and research Techniques and methods of production **Elements of cultural studies with classes** Art History Elements of architecture, sociology, and psychology

> not only on his merits as an artist, but also for the experience he acquired at the first school of industrial design, the well-known Bauhaus in Dessau, Germany. There Segall was in contact with leading innovators and researchers in applied arts and architecture (Breuer, Moholy-Nagy, Gropius, and others)...[14]

Segall had moved to Brazil from Germany in December 1923[15] and went back to Germany to show his work in Berlin in 1926. However, he was never a student at the Bauhaus in Dessau.

Nevertheless, Segall was well informed about and connected with the Bauhaus through his acquaintances in artistic circles, as is clear from his correspondence with Kandinsky, published by Vera D'Horta.[16] Similar questions accompany the textile artist Klara Hartoch (or Clara Hartok), who was professor of weaving at the IAC. Several personal reports show that Bardi introduced her to all his students as a former pupil of Anni Albers at the Bauhaus. However, none of the Berlin Bauhaus archives (the most comprehensive ones) or those from Dessau contain references to Klara Hartoch. The possibility exists that she might have studied at Weimar, where the archives are incomplete,[17] and, if so, she might have been a classmate (rather than a pupil) of Anni Albers, who studied there. Both did research on threads and both favored minimal ornamentation. Another possible explanation is that Klara Hartoch had a different name in Germany during the 1920s. Strangely, no accounts of Klara's past mention her speaking of the Bauhaus. According to

14 *Diário da Noite*, March 22, 1950.

15 Vera D'Horta, Preto no Branco. In *A Gravura de Lasar Segall*. (São Paulo: Museu Lasar Segall; Brasília: Ministério da Cultura/SPHAN/Fundação Pró-Memória, 1988), IX–XVII.

16 Vera D'Horta, *Discordâncias cordiais: a correspondência entre Kandinsky e Segall (1922-1939)*. In: revista de História da Arte e Arqueologia. (Campinas: Unicamp, 1, 1994), 210–25.

17 Hans Maria Wingler, *La Bauhaus: Weimar, Dessau, Berlin 1919-1933*. (Barcelona: Gustavo Gill,1962), 549.

Alexandre Wollner, "[t]hat was the story we heard. That was how Bardi introduced her."

Perhaps there was good reason to boast of connections with the Bauhaus for Lasar Segall and Klara Hartoch. After all, in the 1950s, the Bauhaus had already attained great standing in Brazil. The IAC was eager to show close relations with the Bauhaus school, which would put it almost on an equal footing with Chicago's school of design.

The table in Figure 4 outlines the curricula at the IAC and the Institute of Design, Chicago. The IAC included mathematics, sociology, and psychology, as did Moholy-Nagy's curriculum in Chicago. Despite the similarities, there are differences in terms of the underlying concepts. The content of the specialized courses IAC was to have provided is not known, but the notion of "specialization" found no advocates in Chicago.

IAC and Good Taste

Modern "taste grammarians" such as Henry Cole, Owen Jones or even Le Corbusier, have advocated new positions on furnishings at home and at work. IAC shared this ideal, which Pietro Maria Bardi took up in many texts.

On examining the ideas and works of Gropius, Giulio Carlo Argan[18] wrote that "... serial reproduction becomes the intrinsic process of formal ideation, the machine the most direct means of expression of the artist." This expression comes close to Bardi's view of industrial design: "... making an industrial product for large-scale consumption, both aesthetic and rational at the same time."[19] Of course, achieving this aim was not a task for IAC graduates alone. Unless industrialists themselves understood this new role for art, there could be no progress.

Bardi's insistence on "the contemporary spirit" was clearly targeting the taste of Brazil's elite, berated for their choosing and acquiring Napoleonic thrones and other aberrations. However, his advocacy of modern industrial objects, architecture, and modern art, along with his initiatives in the field of fashion and advertising, suggested that the IAC was much more attuned with consumer items than *Gesamtkunstwerk*.

Closure of IAC

The IAC was finished by the end of 1953. Although the school had managed to get funding from São Paulo's municipal government at one point, it was not enough to cover the costs of its courses and generous scholarship program students' educational materials were provided free of charge, as was access to activities held by the MASP.) A school of this kind could have been financed by businessmen, or by the state government, but this financial support did not happen. Former students thought it was a fine school; it was anchored to the MASP, an institution of growing cultural importance on the

18 Giulio Carlo Argan, *Walter Gropius e La Bauhaus*, 2nd edition, (Turin: Giulio Einaudi Editore, 1988), 23.

19 BARDI, undated, MASP.

Brazilian scene; its program was based on a response to São Paulo's fast-growing industrialization of the 1950s; its founder, Pietro Maria Bardi, had a clear program for connecting the school to economic and cultural life. So why did it fail to establish roots?

Interestingly, the advertising school initiated by the MASP during this same period found more fertile ground. This independent college was called ESPM (meaning advertising and marketing school). So although the MASP ceased to run its own design education program as such, its other initiative turned out professionals for an activity so crucial to capitalism: advertising. The one institution's failure and the other's success raises questions: what about design? Is not design crucial too? Brazil had built an industrial base, and there was great progress in art, so why did design not become part of its development strategy?[20] Or why did it not at least find favor with a substantial number of industrialists?

One conjecture would be that the school was short-lived because of the "excessively" modern nature of its content. However, Brazil's ruling classes seemed to be very modern at that time in terms of absorbing new ideas in art and architecture. The school was opened in the same year as São Paulo's first Arts Biennial. Apparently, then, this cultural *aggiornamento*, based on the city's industrial development, would have been the perfect setting for a new school of industrial design. The IAC's precepts brought it close to Constructivist art, which had gained widespread acceptance in Brazilian artistic circles at the time. It appeared to be precisely the kind of school that could tap the best of international design and work with a confluence of different traditions: Le Corbusier, Gropius, and Loewy. It should have been just right for the situation in Brazil, uniquely capable of defusing conflicts not related to the country's own industrialization issues.

The powerful transformations taking place in Brazil also seemed to gesture toward the relevance of the IAC's project. By 1950, 10 million people were living in cities and 41 million in rural areas. Some 8 million migrated to cities in the 1950s. Brazil's state-owned steel maker opened on April 9, 1941, and started operating under the name of Companhia Siderurgica Nacional in October 1946. Television was brought to Brazil by Assis Chateaubriand himself in 1950. The state oil company, Petrobras, was founded in 1953. The IAC was founded on the eve of the great industrial leap forward that started in 1956 under the government of Juscelino Kubitschek, who built the new capital, Brasília. In this period, a growing job market for designers seemed to be assured, given the expansion of urban consumer markets based on the model of material progress in the United States, and the large number of firms making consumer goods.

20 Until the 1990s, with the beginning of a new period for Brazilian design.

Reasons for Failure

The IAC project failed for a number of reasons—some of them mentioned by Bardi himself. It was said that the young people the school enrolled had an individualistic mentality. Perhaps we can shed light on this argument by asking the question the other way around: was there a collective project capable of offering opportunities for its young graduates?

Alexandre Wollner provides his own interpretation of the events:

> When Professor Bardi thought of setting up the IAC in the early 1950s, his intention was to train professional designers to be part of Brazil's emerging industry, which ought to have been preparing to develop creative and competitive products for export. He had to close the school three years later because industry showed no interest in tapping the talents of the newly graduated designers. Most Brazilian industrialists preferred to pay royalties for making products here, or to import items manufactured abroad (often not suited to our culture and technology) instead of investing to develop them locally. This has been going on for 50 years and continues to this day![21]

Wollner's view coincides with that of Pietro Maria Bardi, who always accused Brazilian industrialists of not wanting to "innovate aesthetically" and blamed them for the closure of the school. The question is this: why would the business community not welcome the IAC and tap the potential it created? To what extent was design not seen as capable of contributing to the strategic program of industrialization in São Paulo and in Brazil during this period?

A key to understanding the issue may be found in an analysis of Brazil's industrialization by Florestan Fernandes. The sociologist spoke directly to São Paulo's industrialists, warning them that "the entrepreneur's intellectual horizon... [had to be changed] as a prerequisite for the formation of an economic mentality consistent with the degree of rationalization of the modes of thinking, feeling, and acting inherent to a capitalist economy."[22]

Although research in Brazil has rarely considered investment by firms in industrial design or in graphic design, but the studies available do show that some entrepreneurs had a solid cultural background. A few firms had some level of contact with the IAC (e.g., Lanifício Fileppo and Cristais Prado, textile and glass manufacturers), and their cultured proprietors supported other initiatives as well, such as the studio, *Móveis Branco e Preto* (literally, black and white furniture).

Among the driving forces of Brazilian industrialization, Florestan Fernandes saw a tendency for constructive imitation, including the notion of industrialization as a civilizing mission rather than as a social force.[23]

21 Alexandre Wollner, *Design visual 50 anos*, (São Paulo: Cosac & Naify, 2003), 295.

22 Florestan Fernandes, *Mudanças Sociais do Brasil*, (São Paulo: DIFEL, 1974), 62.

23 Florestan Fernandes, op. cit., 64.

Brazil's transplanting of techniques and institutions led to obvious gaps that detracted from creating a context in which capitalist companies might show their worth. By copying standards and assimilating techniques developed for other sociocultural contexts, Brazilian industrialists were saved the effort of investing in invention. Or in the words of João Manuel Cardoso de Mello and Fernando Novaes, "In the twentieth century, thanks to relatively stable technology standards and production in the developed countries, we were able to enjoy the facilities of copying."[24]

The environment that Bardi had to deal with in São Paulo surely bore some problematic marks: a kind of industrialization that, in the words of Warren Dean, had been copying items without licenses or rights a lack of investment in specific education, the fact that for decades industrialists had been making goods consumed especially by the lower classes and the methods used by the automakers: these were the marks of "[f]irms that did nothing but join parts or assemble the final product."[25]

Florestan Fernandes again speaks of the differences between Europe and Brazil in relation to the disruption brought about by mechanization:

> In England, France, Germany, and the United States, mechanization caused disruption related to the pace of changing human nature, but in a country like Brazil, it would have to be associated with more severe disruption. This was due to the abrupt introduction of machinery and the lack of previous socializing experience.[26]

The rapidity of the changes to which Fernandes refers was directly related to the absence of a period of gestation for design that characterized Brazilian industry. This pace of change was aggravated by a "narrow and cramped intellectual horizon, impotent before a social-historical destiny captured by transplanting."[27]

Creating industrial design is a much greater and more complex task than simply copying imported models, given the labor time required to formulate an autonomous project. And it requires educated agents capable of mastering techniques and languages, who would be paid much more than manual workers.

As an industrial design school, the IAC was apparently out of step in relation to the temporal/spatial parameters of Brazilian capitalism, rather than being ahead of its time. Roberto Schwarz has made a pertinent observation in this respect: "Throughout the course of its social reproduction, Brazil tirelessly assumes European ideas again and again, and does so inappropriately in every case." Or again: "We start from the common observation, almost a feeling, that in Brazil ideas were out of kilter in relation to their use in Europe."[28]

Former students of the IAC excelled in the fields of graphic design, decoration and interior architecture, and landscaping—but not in product design.

24 Cardoso de Mello, João Manuel and Fernando Novaes, *Capitalismo tardio e sociedade moderna*. In, *História da Vida no Brasil: contraste da intimidade contemporânea*. (Series coordinated by Fernando A. Novais; volume organized by Lilia Moritz Schwarcz. São Paulo: Companhia das Letras, 1998), 645–6.

25 Dean notes that in the 1930s, "American vehicle and machinery makers, Ford and General Motors particularly, started assembling their products from imported parts, mainly because it was cheaper to ship in knocked-down kits, and market choices such as bodywork color and style were best catered for locally." [translation from the Portuguese version]. Warren Dean, *A industrialização de São Paulo (1880-1945)*. 4th edition. (Rio de Janeiro: Editora Bertrand Brasil, 1991.), 31, 77, 121.

26 Florestan Fernandes, op. cit. (1974), 76.

27 Idem, ibid.

28 Roberto Schwarz, *Ao Vencedor as Batatas*, (São Paulo: Livraria Duas Cidades, 1977), 24.

Further study of the IAC would be useful because the academic milieu of Brazilian design recognizes the founding role of the Rio de Janeiro school of industrial design (Escola Superior de Desenho Industrial, ESDI), which opened in 1963, modeled on the Ulm School. The "copy" of Ulm model and the foundation of an industrial design school were made possible probably because Brazil at this time had already gone through an intensive industrialization process.

The IAC proposed a different educational model, in a dialogue with ephemera (fashion), aspiring to close relations with industrial rationality but not situated outside the field of the arts, as ESDI. It was an original project, as in Italy there was no specific design school in this period.

Volkswagen Kombis first reached Brazil in 1953, when the IAC closed. Their characteristic linearity as utility vehicles might have helped to endorse a new public taste for industrial art as advocated by Bardi. The year 1953 ended with the inauguration of São Paulo's second Biennial, and the city became a reference in the art world, also gaining recognition for modern and constructivist art locally. Although the IAC failed to take root, the constructivist art with which it was associated surely helped set new standards for taste in Brazil.

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