

# Design's (Dis)orders: Mediating Systems-Level Transition Design

Cameron Tonkinwise \*

---

**Abstract:** Transition Design requires a different kind of designer, one who is not subject to the same kinds of motivations and satisfiers that have ruled design for the last century. This chapter articulates the psychology of Transition Designers as they strive for systems-level rapid change. As a result, the crux of Transition Design emerges as a practice of materially mediating structural change over time through networked collaborations. The cure for the modernist designer's megalomania and perfectionism lies in learning to "stay with the trouble".

**Key words:** orders of design - systems design - massive change - design at scale.

[Abstracts in spanish and portuguese at page 96]

---

(\*) Cameron Tonkinwise is the Professor of Design at University of New South Wales Art & Design. He was previously director of design studies and doctoral studies at Carnegie Mellon University's School of Design and before that, associate dean sustainability at Parsons The New School for Design and director of design studies at the University of Technology Sydney. The focus of Cameron's research is sustainable design, in particular, design that enables transitions toward less materials-intensive ways of living, such as could be afforded by sharing economies. [c.tonkinwise@unsw.edu.au](mailto:c.tonkinwise@unsw.edu.au)

## Alienated Designers

Although designs are pervasive (they are every single thing nearly everyone on the planet depends on every day), design (the process of designing) remains little understood not only by people in general but also by nondesign academics who are otherwise concerned about society and how to change it. This makes designers, the people with expertise in how to make the useful things we are surrounded by, seem strange. Designers pay attention to things that nearly everyone else just takes for granted. On one hand, designers notice the smallest faults in things that seem to most of us completely satisfactory. Instead of just getting on with things, designers always seem to be pausing to interrogate the material quality of this sign or that chair, those interfaces or these shoes. On the other hand, designers never seem to see things for what they are, but are instead always imagining what else they could be: A corner of the room needs a different kind of lighting, some discarded

fabrics could be bound into a chair or shredded into house insulation, and the way people in certain cultures greet each other with a handshake suggests a metaphor for the interface of an online security protocol. These contradictory habits of mind –attending too much to things and attending too much away from things (this turn of phrase, “attending to” is from Polanyi 2009)– make designers seem unusual.

These qualities could even be considered productive disorders, abnormalities that allow extraordinariness. At one end, designers tend toward a kind of obsessive compulsiveness. This excessive concern for detailing derives from design's craft origins. As David Pye (1968) once noted, craftspeople must be very careful because there is an inherent risk involved in any act of hand-making. The imperfections that are tolerated in craftworks, even celebrated, however, must be eradicated once designers begin to fashion models for mass production. Craft fastidiousness becomes designer perfectionism.

At the other end, designers are prone to a certain megalomania. The European origin story, centered on the Bauhaus (see Findeli, 2001), and the North American version, as expounded by the Streamliners (see Andrews, 2009), argued that modern styles of art derived from new machine forms and materials, when applied to everyday products and environments, could de-traditionalize people, accelerating them into more universal, efficient, and rational ways of living. For this reason, everything should be (re)designed: total design.

To insensitively stretch the metaphor, being bipolar in this way, strung between material detail and metaphysical systems, leads designers to be insufferable narcissists at some times and paranoids at others. Designers swing maniacally from naïve optimism about their capacity to improve the quality of anything to hypercritical pessimism in which it is incumbent to do, as Raymond Loewy titled his autobiography, *Never Leave Well Enough Alone* (2002).

## Anthropocene by Uncoordinated Design

There is a serious aspect of this probably offensive diagnosis. Although designers are strange, or because designers are strange in these ways, they have a hand in the creation of almost every product, environment, and communication with which anyone engages. Where everyone else just uses things without noticing their qualities and their other possibilities, the disorders that distinguish designers motivate and empower them to keep making and remaking things. Products keep changing and so pile up around us (global consumers) before they wear out precisely because designers note some imperfection, some interaction pain point, some other way of accessing efficiency or productivity, or convenience and comfort, or just passing sensorial pleasure.

The world suffers at the moment from this gap between the detail-oriented materialism and the systems-imagining utopianism of designers. That planetary pathology is well captured by the notion of the Anthropocene. Millions of designers make billions of things. Designers tend to bring an obsessive focus to whatever design situation they are trying to transform. They channel their fantasies of world-changing power into this particular website or piece of equipment or service, imagining that if every aspect of this design

context were comprehensively integrated by a highly resolved, elegant design concept it would make all the difference in the world. However, the foci of every designer never get coordinated. Well-designed products might perfectly respond to the needs of a certain set of people in some current set of conditions, but invariably those needs, people, and conditions are quickly impacted by the arrival of other products designed for different contexts. What was well-designed then no longer fits, and the resulting redesign, in turn, impacts other context-specific-well-designed products. The results are societies that are unsustainably materials intense, accumulating junk in landfills and ocean gyres, and generating accelerating volumes of ecosystem-damaging toxins and climate-changing pollutants. The Anthropocene signals a moment at which humans are having impacts on a geological scale. These impacts are by design, but they are not able to be designed. Designers have megalomaniacal powers, but their material detail compulsiveness means that they are not in control of all that they are collectively doing. Their idiosyncratic ways of being dreamy yet driven makers is undermining the very societies the designers wish to service.

Transition Design is obviously motivated by the unsustainability of the Anthropocene. At its crudest, Transition Design aspires to rekindle the large-scale ambitions that surrounded the formalization of design in the first place, at the beginning of the 20th century. The crises that are symptomatic of the unsustainability of how our societies are currently organized demands radical and immediate structural change. We need to completely redesign not only how we resource our everyday lives but also the very values that motivate those ways of living: massive change as Bruce Mau espoused, heroic futures Alex Steffen as described them. This is why the top compass point of the Transition Design model is visions. However, the total design project of modernism was part of the problem. Early designers on either side of the Atlantic had strong visions that they often managed to impose with procrustean force. Because these visions were universalist, the designers paid no attention to local specificity, whether cultural or bioregional. The resulting displacement cleared the way for the commodity flows of globalization.

Transition Design therefore tries to qualify its reinvention of rapid, ambitious structural change. Transition Design asks that those visions motivating change be context-specific and modifiable to all that happens as change is implemented. To do this, designers need more sophisticated theories of change than to materialize the vision. They need to understand, at the level of practice expertise, what it means to try to enable structural change in complexes of living systems and sociotechnical systems.

Further, Transition Design recognizes that to do this, to switch from making things with obsessive care even if in the hope that the result will history-making, will challenge the psyche of the designer. The mindset and posture section, which grounds the Transition Design model, is there because Transition Design, to some extent, acknowledges the role the pathological disorders of designers has played in Anthropocenic unsustainability. To enable the transitions urgently needed by our societies, designers must cure themselves of the conditions that have, to date, motivated their designing. This is not a matter of renouncing completely their concern for material quality and their fantasies of society steering; instead, it requires redirecting these tendencies.

In what follows, I want to try to clarify what those redirections entail. I do so by exploring a range of existing approaches to systems-level redesigning. I emphasize the role that ma-

material designs play in mediating such large-scale phenomena and change. Understanding the nature of these mediations that material designs effect, can, I argue, bring together the designer's attention to detail and ambition for change in ways that can respond to instead of just exacerbate the Anthropocene. Working with these mediations also opens designers up to forms of collective action over time that are essential to the efficacy of Transition Design.

## Design in Many Sizes

The word *design* covers many different kinds of designing. The categorization of these subdisciplines of the profession of design are often made according to the nature of what is being designed: a communication, a fashion item, a product, an interior, etc. The suggestion is that the kinds of decisions a communication designer needs to make are quite distinct from those of a product designer. Their materials are distinct, as therefore are their tools. Each practice of designing, therefore, tends to have its own history of precedents, patterns, and principles.

From one perspective, the distinct forms of designing have different objectives: meaning and use, for instance, in the case of communication and product designers, respectively. However, from another perspective, both want to change what people do in the world and to do so via persuasion: a communication changing someone's understanding about the world and so then their interactions with that newly understood world or a product persuading someone through form to buy it and then use it in particular ways in order to go about doing something in the world in a new way.

What is common to all designs is that they manifest in some kind of thing. That thing is usually a discrete material product, whether that be "a poster or a toaster", a jacket or the chair to hang it over. But these days, the outcomes of design can also metaphorically be things: an app, a media experience, a service journey. Designers change what people think and do through the things that they design and get people to engage with.

To this extent, one can rank the different kinds of designing by the size of the things people design rather than the things' separate qualities: letterform, image, page, book, tool, clothing, furniture, white good, car, interior, building, organization, neighborhood, and city. A sequence like this suggests that the scale changes the nature of design; designing a small thing is very different from designing a big thing.

This is not just a categorical dispute. It sets up the first question about the nature of Transition Design. If Transition Design is about large-scale systems change, in response to the Anthropocene, is it even still a kind of designing? Is it not instead more like architecture or planning? I want to argue precisely that what Transition Design brings to structural social change is the design of handleable-scale artifacts, that this perspective affords something different from how practices like architecture and planning approach systems-level change. I need to be clear here about what this argument involves. I am not sure, for instance, that architects and urban planners do not actually design. It is difficult for most people to get their heads around large, complex structures at scale, as they will be experienced. Consequently, in most cases, architects and planners actually work with models of those

structures. These models might literally be maquettes or physical models, or they might be computational models visualized –as scaled-down forms in the case of most architecture or as systems of flows often in planning– on screens as objects that can be manipulated. If designing is the expertise particular to creating human-scale things, then when architects architect and planners plan bigger things, they are in fact designing, because they are making their decisions based on human-scale things.

This can be a risky thing to do. There is a danger that designing the large scale via models mistakes the map for the territory. There are aspects of designs that because of their scale are more controllable; extending this sense of controllability to wider systems is erroneous. Western philosophers have long counseled that we should not be trying to design social systems as if they were tools or machines. You will miss the complex living aspects of social systems when they approached with *techné* (see for example Dunne, 1997; Flyvbjerg, 2001, or in a more recent management context, Chia & Holt, 2009). Such designs tend not to fail but to succeed by reducing the people and places involved to manipulable materials. Therefore, I am not arguing for this version of design mediation of large-scale design.

To explain what I am arguing for, consider that another account of the different scales at which design works suggests that the design of larger things is just the design of more things. An interior comprises light fixtures, furniture, and equipment but also wayfinding; in other words, an interior entails the design of many products and some communications. A service design can require designing uniforms and digital touchpoints, as well as interiors that orient customers and sculpt the experience. In this sense, larger-scale design involves lots of kinds of designing of many things (Tonkinwise, 2012, 2014). The point here is that such larger systems designing requires designers to try to coordinate many-things designing. This requires tempering their detail focus. But it also requires tempering their megalomaniacal tendencies, as in large systems there will be too many things to control. Designers of organizations, buildings, or even just multiple-path services have to design agility into the many things they design, rather than trying to assure that every thing functions as designed.

## Volumes of Design

This hierarchy of design by the scale of the product is deceptive, however. When an architect builds a building, no matter how big, there is in the end only one building, whereas there might be a million of some product an industrial designer makes. That building's image might circulate widely, and perhaps thousands of people will visit such an iconic piece of architecture, but the number of people who get to experience the building as designed –living and working in it– is comparatively small. In contrast, it is not just that there are a lot of iPhones; it is that people with iPhones have them with them almost every minute of the day. Further, a graphic, designed for an advertisement that plays during a globally televised sporting event, will be viewed by millions. A typeface might be used for billions of words over a century. And an applet on a digital platform might have billions of daily active users. In a different way, the design of a component, like an Allen hex key, or a shipping container, or the interaction design behind an online shopping cart, not only

gets used a vast number of times but also becomes the infrastructure for whole industries or technologies.

These examples suggest that the design of certain smaller things can have a much larger impact on the design of large things, even if they are as large as a city. If Transition Design aims to increase the agency of designers in relation to bringing about change toward more sustainable futures, then Transition Design has to be attentive to those types of designing with large-scale reach. This is why the fourth arm of the model involves consideration of new ways of designing. Undertaking Transition Design involves a fundamental redesign of design itself. As more sophisticated theories of change suggest, this metadesigning cannot be done *ex nihilo*. On the one hand, redesigning design into Transition Design must involve colliding traditional (Eurocentric) forms of professional designing with other related yet distinct practices (for instance, community organizing, social innovation, etc.) but more importantly, also learning from the ways other (non-Anglo American) peoples practice making and social change. But Transition Design must also be attentive to transformations in how design is taking place even within the very heart of the Global North's capitalism modes of production.

The kind of product design undertaken by social media platforms and tech firms represents an important opportunity for Transition Design with respect to effecting large-scale change. Transition Designers must find ways of negotiating the new types of designing involved in these information systems. If it is difficult to comprehend a large-scale system like a building or a city, then it is impossible to have a clear sense of what millions of active users means. Before the arrival of design (Winograd, 1996), software development was entirely a one size fits all process. There was merely an abstract version of the user guiding what was produced. Design was first incorporated into information system design by synthesizing a range of people into one persona to make designing possible (Cooper, 2004). This is an important point for Transition Design as it struggles to understand social values or human needs without being reductive. As computational power has increased, designers are able to be more responsive to a finer grain of users, though only because of systems which also entail the entrenchment of surveillance capitalism. Important new forms of designing being used by tech companies to find customizable value propositions are agile software development, lean startup, and lean user experience (UX). These processes are motivated by efforts to avoid waste and produce only what people demonstrably need. However, an overriding concern is accelerating the production of market-testable options, something that trivializes rich modes of social research and renders liquid, in Zygmunt Bauman's sense (2013), any of the products of design. How to redirect the forceful scale accessed by designers working in agile and lean ways within platform economies toward the project of Transition Design. (I have started to think through these topics but not yet successfully; see Tonkinwise, 2015, 2016.)

This last point, concerning the length of time that a designed product manages to exert influence over what people do, draws attention to another key feature of design-enabled structural change –its timescale. A mass-produced product might be owned and/or used by an individual, family, community, or organization. The product may be for occasional specialist use only, regular use, or continuous use. And it may service those people with those rhythms for one use only, a season, a year, a decade, or a century, or more. Each in-

dicates something about the capacity for a design to mediate a larger or longer change in how people live and work. And each involves distinct ways of designing and dispositions from the designer. How, for example, to design something that will outlive the designer, perhaps outlive one generation of users by being passed on to a subsequent generation? What kind of design research, design critique, and design testing is appropriate in those situations, situations that are crucial if we are to conduct multiphase transitions to wholly new societies?

## Rhetorical Design Orders

An early response to the rise of new forms of designing, like digital interaction design, was Richard Buchanan's (2001) orders of design: first order, signs and words; second order, products and things; third order, processes and services; and fourth order, environments and cultures.

At first, these orders seem to be scaled similarly to ones already discussed, from small to large. There is also an implied historicity to the list. One version of his account of the orders of design was published by Buchanan (1998) as part of a response to Andrea Branzi's explorations of what *Design after Modernism* (this is John Thackara's [1988] phrase) entailed. The background claim is that design evolved from a decorative art focused on styling preexisting products (the first order) to the designing of the products themselves (the second order). Postindustrial designers researched the contexts of the use of their products, with this realm growing into the activity-flow design of user experience (the third order). The trajectory of this history seems to indicate that the concerns of designers will widen further, deploying soft systems thinking to design organizational and even (trans)national built environments and cultures (the fourth order).

This kind of historicizing of design's development suggests that Transition Design is merely the next logical step of a linearly maturing profession. However, interpreting the orders of design in terms of this progression is wrong. The Bauhaus and the Streamliners at the birth of modern design explicitly characterized their ambition as of the fourth order. But more significantly, Transition Design is a move away from the unsustainable direction that design has been reinforcing for the last century. The structural change that it seeks must not entail the same kind of logic as the orders of design model suggests. Therefore, let us interrogate more closely the nature of Buchanan's argument.

The orders of design model insists that as the scope of designing enlarges, there is also a qualitative shift in how designing happens. Buchanan was one of the first people to promote in any comprehensive fashion the notion of design thinking. That is because Buchanan characterized higher-order designing as something distinct from design-as-making.

The version of the orders developed by Tony Golsby-Smith (1996), a collaborator with Buchanan, for example, foregrounds that the different kinds of designing at each order involve a larger scope for each design consultancy, requiring the designer to speak to more people, for longer. In the first two orders, the focus of the designer is on the artifact, whether it is a communication or a product. There is a briefing from the client about the

nature of the user, but the designer focuses on the mediating artifact. In the third order, the designer spends more time on the problem rather than rushing to the artifactual solution, reframing the client's understandings of the problem as a result of researching what is problematic for the projected market and/or how those people will experience the emerging design. The fourth order reframes the problem further, contemplating organizational change for the client and cultural change for the community.

On one reading then, escalating orders of designing involve situations that are increasingly wicked (Buchanan, 1992), requiring designers to spend more time negotiating with multiple stakeholders to attain consensus about ways of framing problems. As designers seek to make wider changes to larger systems, they must therefore engage in more political thinking before they get to think with material interventions in those situations.

However, in other versions of the orders of design, Buchanan used a second axis that identifies various rhetorical arts that correlate to all the different kinds of designing: *invention* or the discovery of persuasive argument, which tends to correlate with signs and symbols; *judging* the viability of a proposal to produce something, which tends to correlate with products and things; *decision-making* with a group of experts about process planning and service strategy, which tends to correlate with processes and services; and *evaluating* wider societal needs, which tends to correlate with environments and cultures. On this reading, all orders of designing involve thinking arts even if their concerns and outputs are more material.

To put it the other way around, all orders of design should still involve aspects of the other orders. Doing third- and fourth-order designing does not entail leaving behind (or until later) first- and second-order designing. To do decision-making in relation to services and evaluating of environments, you still need signs, symbols, products, and things. Facilitating workshops on organizational culture requires the production of mediating materials, such as appropriate graphics and furniture, software, and clothes. This is very apparent when looking at things like Conklin's (2006) dialogue mapping tools and techniques for making collective sense of wicked problems. These products of design that, in turn, enable a higher order of designing can be interpreted as functioning rhetorically as Buchanan (1985) does, although it seems more productive to read their agency as deriving more from their materially afforded mediation (see Tonkinwise, 2017; Verbeek, 2005).

Design thinking at the systems level of wicked problems does not therefore refer to designers thinking more and making less, but rather bringing the thinking that happens through designerly making –whether visual, material, or interactional– to those more complex contexts.

## Pathways to Collective Impact

Buchanan's orders of design argument was the first in a series of polemics about design research that aimed to mature the profession of design into a discipline with its own research epistemologies and ontologies. As a result, designers can increasingly participate alongside other more established disciplines in responding to complex social problems, and in many cases claim to be in the best position to lead such projects. Transition Design



is explicitly an attempt to bring knowledges from other disciplines into the principles and practices of design, and vice versa, asserting the importance of the design of human-scale material mediations for effecting multilevel, multistage sociotechnical transitions.

This inherently transdisciplinary nature of Transition Design is why accounts of the development of Transition Design (Irwin, 2015) foreground the pathways in the social design matrix that emerged from the 4th Winterhouse Symposium and was elaborated at the Art Center Pasadena's Leap Symposium. This map combines levels of engagement, or what I have been calling in this chapter, scales of design, with the nature of expertise involved, from design-specific through interdisciplinary collaborations to networks. The model looks hierarchical (many of these models imply in a Western-based conceptual metaphor way that you should be aiming to get to the top right), but the pathways in social design models are more a tool for making a decision about the appropriate entry point for the scale of change that suits current conditions and resources.

The pathways now need to be integrated with the collective impact movement that is currently dominant in social innovation (Kania & Kramer, 2011). This makes an important point about the way in which Transition Design negotiates the megalomania of design-led structural change. Collective impact is a multiorganizational approach to social change. This movement insists that systems-level change requires a networked approach in which no one person or organization is the authority (though there is the need for a backbone organization). This means that cosmopolitan localism is not just a quality of the vision that Transition Designers pursue, but that Mindset and Posture are essential to the New Ways of Designing that enable transitions. The work of a collective impacting Transition Designer occurs at a local leverage point but within a cosmopolitan network of multilevel interventions undertaken by others. This is not a system of military control but precisely an effort toward the kind of coordination that has been lacking from what designers have done to date individually and consequently resulted in Anthropocenic unsustainability.

## Coordinating Designing Over Time

With this, I am returning to the more psychological perspective with which I began this chapter. I have talked about the fact that Transition Design must very much be a kind of design, operating with a care for material quality no matter at what order the design is attempting to bring about change. But what is especially distinctive about Transition Design is that it concerns transitions. The scale at which Transition Design is choosing to respond to the Anthropocene has less to do with the size or volume of what is designed or for who it is designed than it has to do with its duration, the temporality of its change. The word transition emphasizes a change over time, a series of ontological shifts. Transition Designers not only coordinate with a range of other professions and disciplines to establish pathways for collective impact at the level of cultures and environments; Transition Designers also attempt to coordinate with a range of changes over time. These designers create visions to motivate moves into futures in which other futures might be subsequently possible. Transition Designers build platforms to see around corners. Again, coordinating over time demands something very different from a commanding desire for control; but it

also requires being released from a sense of perfectionism, from the idea that what is being designed might be finished, in every detailed aspect, once and for all.

From this perspective, another kind of disorder prevalent among (lower-order) designers is what could be called their serial monogamy. They focus committedly on one project, working toward completion. Within that project, designers do not, in fact, aim to “satisfice”, as Herbert Simon (1996) claimed. Invariably, time and/or money constraints end the project before the designer accomplishes that desired true completion. And then, invariably, the designer will move on to a different job. It is pathology that designers are quickly bored by the same type of job.

Staying with the trouble (the title of Haraway’s book (2016) in a related context) –because there is no stopping point to wicked problems– must be a trait of a higher-order designer, especially one whose ambition is to be a change agent of transitions. Consequently, what is unique about the transition order of design is that designers have the methods and theories but also the (psychological) disposition to undertake multiple changes within a situation over time. Designers always recognize that they will have to make many moves, many moves at the same time, but also many subsequent moves. They design with a view to the subsequent moves that need to be made. There is no perfectionism because from the outset every design intervention is already seen as only the first in a series of others. Subsequent interventions might need to be reevaluated once the consequences of the initial intervention have played out. But there is never the sense that the initial intervention will be sufficient.

This is a very different kind of designer, one who cannot be megalomaniacal because the level at which he or she is operating is complex and wicked and at the edge of limits and serious risks. But this designer also cannot be compulsively detailed because there will be a need to quickly follow up with the next move. Neither naïve nor cynical, this is design as responsible work, creative and critical, but no longer drifting through boredom waiting for inspiration.

## References

- Andrews, T. (2009). Design and consume to utopia: Where industrial design went wrong. *Design Philosophy Papers*, 7(2), 71-86.
- Bauman, Z. (2013). *Liquid modernity*. New York, NY: Wiley.
- Buchanan, R. (1985). Declaration by design: Rhetoric, argument, and demonstration in design practice. *Design Issues*, 3(1), 4-22.
- Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, 8(2), 5-21.
- Buchanan, R. (1998). Branzi’s dilemma: Design in contemporary culture. *Design Issues*, 14(1), 3-20.
- Buchanan, R. (2001). Design research and the new learning. *Design Issues*, 17(4), 3-23.
- Chia, R. C., & Holt, R. (2009). *Strategy without design: The silent efficacy of indirect action*. Cambridge, England: Cambridge University Press.
- Conklin, J. (2006). *Dialogue mapping. Building shared understanding of wicked problems*. West Sussex, England: Wiley.

- Cooper, A. (2004). *The inmates are running the asylum: Why high-tech products drive us crazy and how to restore the sanity*. Indianapolis, IN: Sams.
- Dunne, J. (1997). *Back to the rough ground: Practical judgment and the lure of technique*. Notre Dame, IN: University of Notre Dame Press.
- Findeli, A. (2001). Rethinking design education for the 21st century: Theoretical, methodological, and ethical discussion. *Design Issues*, 17(1), 5-17.
- Flyvbjerg, B. (2001). *Making social science matter: Why social inquiry fails and how it can succeed again*. Cambridge, England: Cambridge University Press.
- Golsby-Smith, T. (1996). Fourth order design: A practical perspective. *Design Issues*, 12(1), 5-25.
- Haraway, D. J. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Durham, NC: Duke University Press.
- Irwin, T. (2015). Transition Design: A proposal for a new area of design practice, study, and research. *Design and Culture*, 7(2), 229-246.
- Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review*, 9(1), 36-41.
- Loewy, R. (2002). *Never leave well enough alone* (Paperback ed.). Baltimore, MD: Johns Hopkins University Press.
- Polanyi, M. (2009). *The tacit dimension* (Rev. ed.). Chicago, IL: University of Chicago Press.
- Pye, D. (1968). *The nature and art of workmanship*. Cambridge, England: Cambridge University Press.
- Simon, H. A. (1996). *The sciences of the artificial* (3rd ed.). Cambridge, MA: MIT Press.
- Thackara, J. (Ed.). (1988). *Design after modernism: Beyond the object*. New York, NY: Thames and Hudson.
- Tonkinwise, C. (2012). Weeding the city of unsustainable cooling, or, many designs not massive design. In L. Tilder & L. Blotstein (Eds.), *Design ecologies: Essays on the nature of design* (pp. 26-39). New York: Princeton Architectural Press.
- Tonkinwise, C. (2015). Radical sustainable innovation. In P. Stebbing & U. Tischner, (Eds.), *Changing paradigms: designing for a sustainable future* (pp. 284-295). Aalto, FL: Cumulus Think Tank
- Tonkinwise, C. (2015). Prototyping risks when design is disappearing. *Current Issue 06: Designing Wisdom*. <http://current.ecuad.ca/prototyping-risks-when-design-is-disappearing>
- Tonkinwise, C. (2016). Failing to sense the future: From design to the proactionary test drive. *Social Research: An International Quarterly*, 83(3), 597-624.
- Tonkinwise, C. (2017). The practically living weight of convenient things. In L. Atzmon & P. Boradkar (Eds.), *Encountering things: Design and theories of things*. London, England: Bloomsbury Academic.
- Verbeek, P. P. (2005). *What things do: Philosophical reflections on technology, agency, and design*. University Park: Pennsylvania State University Press.
- Winograd, T. (1996). *Bringing design to software*. New York: ACM Press.

**Resumen:** El Diseño para la Transición requiere un tipo diferente de diseñador, uno que no esté sujeto a los mismos tipos de motivaciones y satisfactores que han regido al diseño durante el último siglo. Este capítulo articula la psicología de los Diseñadores para la Transición mientras luchan por un cambio rápido a nivel de sistema. Como resultado, el *quid* del Diseño para la Transición emerge como una práctica de mediación material en el cambio estructural a través del tiempo y de colaboraciones en red. La cura para la megalomanía y el perfeccionismo del diseñador modernista radica en aprender a “lidiar con el problema”.

**Palabras clave:** Órdenes de diseño - diseño de sistemas - cambio masivo - diseño a escala.

**Resumo:** O Design para a Transição precisa um tipo diferente de designer, que não esteja sujeito aos mesmos tipos de motivações e elementos de satisfações que regiram o design durante o último século. Este capítulo articula a psicologia dos designers para a transição enquanto lutam por uma mudança rápida do sistema. Como resultado, o quid do design para a transição emerge como uma prática de mediação material no cambio estrutural através do tempo e de colaborações em rede. O remédio para a megalomania e o perfeccionismo do designer modernista está em aprender a lidar com o problema.

**Palavras chave:** ordens de design - design de sistemas - mudança massiva - design à escala.

---