Designed transitions and what kind of design is transition design?

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ABSTRACT

What is Transition Design? How is "Transition Design" similar or different from other types of "design"? How might the overarching goal of "Transition Design" to achieve societal sustainable futures differentiate it from other types of design? Is there only one kind of "Transition Design" or multiple versions of "transition design"? And, if there are multiple versions how do they relate? What are the conditions by which transition design becomes Transition Design and vice versa? How might multiple types of "transition design" differ according to the design intent, design intelligence, timescale, context, systems involved? What relationship might Transition Design and businesses have?

Who is engaged in Transition Design? The wording 'design led societal transition to a more sustainable future' (https://en.wikipedia.org/wiki/Transition_design) implies that design and designers are leading the societal transition. The authors go on to say 'Transition designers can come from all walks-of-life and backgrounds, regardless of whether they are formally trained designers.' (https://en.wikipedia.org/wiki/Transition_design) In other words, Transition Designers are those engaged in transition design regardless of training and expertise.

But, one may ask, who are the designers, professionally trained or not, that have the power, agency, influence, and mandate necessary to plan and implement a societal transition toward sustainable futures? The question is inevitably political (Fry 2011). Perhaps the type of politics raised depends on the scope of the transition design project involved. In other words, depending on the level of scale the politics and power, agency, and mandate may vary. For example, transitioning one's lifestyle to create more sustainable futures is a different design project than transitioning a global corporation to engage in more sustainable practices, and different still from engaging governments to reduce carbon emissions and transition to renewable energy sources. The diversity of levels of scales described suggests the need for many different types of design methods, processes, and design skills.

Given the ambition of Transition Design toward a societal scope of sustainability, a broad range of expertise is necessary. More to the point, the wording 'an understanding of the

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interconnectedness of social, economic, political, and natural systems' (https://en.wikipedia.org/wiki/Transition_design) points to a strategy to achieve the goal. To pursue such a strategy to improve the quality of life, expertise from multiple disciplines and designers capable of operating at multiple levels of scale are necessary. The interconnectedness of social, economic, political, and natural systems provides different perspectives from which to articulate 'preferred situations,' for whom, and in what ways. Professionally trained designers will need to incorporate a 'sustainment' centered perspective (Fry 2009) from those four perspectives into their design processes to support the transition toward sustainable futures.

In part, societal transition to sustainable futures likely involves averting societal collapse. In the book *Collapse*, Jared Diamond (2005) describes eight factors associated with unsustainable societies in the past: (a) deforestation and habitat devastation; (b) soil problems (e.g. erosion, salinization, soil fertility losses); (c) water management challenges; (d) overhunting; (e) overfishing; (f) negative effects of introduced species on native species; (g) overpopulation; and (h) the increased per-capita impact of people. He describes four factors that are likely to impact future societies: climate change, increased environmental toxins, energy scarcity, and full human use of planetary photosynthetic capacity.

While the locus of Transition Design as currently articulated is 'everyday life,' the 12 factors Diamond lists need to be addressed in order to transition to a society with sustainable futures. In all likelihood, multiple expertises are necessary to address Diamond's challenges at a societal scale. The wording 'an understanding of the interconnectedness of social, economic, political and natural systems' (https://en.wikipedia.org/wiki/Transition_design) suggests ulterior complexity and suggests that such perspectives need to be integrated. The phrase 'design led' may be interpreted to mean that transition designers have significant integration roles in such collaborative endeavors. Integrating and harmonizing such varied perspectives is a challenge personally and collectively for designers.

Links between transitions, design, and business

What types of design are Transition Design and transition design and how do they relate to other known types of design? How are past understandings of design connected to transition design? Some definitions of simple, direct design are articulated as the process of going from a problem state to a solution state (e.g. Doblin 1987; Munari 1981). Other authors expand the design process to describe more complex design problems that require multiple iterative stages within a design process such as: analysis, synthesis, evaluation (Asimov 1962); analysis, genesis, synthesis (Doblin 1987); divergence, transformation, convergence (Jones 1992); divergence, convergence (Brown 2009); strategy, research, observations, analysis, structured insights, ideation, principles, refinement, prototype development (Saffer 2010); discover, design, develop, deliver [do three iterations] (Wasserman 2011), and so forth.

The brief sampling of design processes listed above each have a starting point and an endpoint. By examining these processes further we find that there are criteria that guide iteration and determine the qualities of proposed solutions within the design process itself. Even Charles Eames' definition of design as 'a plan for arranging elements in such a way to accomplish a special purpose' (Neuhart, 1989, 14) suggests that the designer, within the logic of a design process, defines values. In other words, the logic of the values and measures of success for the design process are defined ad hoc within the design process itself based on the sensitivity of the designer (or design team).

Herbert Simon instead explicitly describes values added through design by connecting design 'courses of action' explicitly to 'changing existing situations into preferred ones' (Simon 1996, 111) However, Simon's definition begs the question: how might one evaluate 'designed courses of action' that are beneficial to some and detrimental to others? For example, is the design of a delightful user experience a 'preferred situation' if workers are handling toxic chemicals in unsafe conditions and are exploited in faraway countries to fuel extra-large corporate profits and increase the digital-divide at home? For whom is this a preferred situation: the customers, the workers, the stockholders, the local community exposed to toxic manufacturing materials, the digitally excluded? Even if all problems mentioned impacting humans directly are addressed, is the situation also 'preferred' for the natural environments, natural resources, and other life forms on the planet? Is the solution preferred for present and future generations?

In the prior examples, the values driving the design are defined and embedded within the design process by the designers and others involved in the design process. A narrow framing of the 'preferred state' ignores the unintended consequences on other people, life forms, environment, and the planet as a whole. A broader system-wide exploration of values that include people, the planet, and finance implicitly challenge many of the narrower understandings of design methods and processes. Or at least, when the unintended consequences are clear, pursuing that paradigm seems undesirable and suboptimal.

Value creation and transitions

Values that articulate the 'preferred situation' for users, workers, community, and the planet can be embedded within design and business processes. There are formidable examples of companies such as Interface carpet that explicitly include such broad system values within their design processes, operations, and corporate practices (Interface 2015). Interface has a long track record of commitment to becoming more sustainable that began in 1994 when the company redesigned their processes, products, and business practices. They went from being a carpet industry leader in defuturing practices to a sustainability poster child (Anderson 2009).

Interface established seven sustainability efforts, giving themselves a 2020 deadline to achieve the following goals: eliminate waste and toxic emissions, use renewable energy, close the loop, use efficient transportation, sensitize stakeholders, and redesign commerce. Eliminating waste involves removing all forms of waste in every area of the business, including toxic substances from products, vehicles, and business. Using renewable energy requires operating facilities with 100% renewable energy. Closing the loop pertains to the redesign of processes and products to help close the technical loop by using recycled and biomassed materials. Using efficient transportation means transporting people and products efficiently to eliminate waste and emissions. Sensitizing stakeholders means creating a culture that uses sustainability principles to improve the lives and livelihoods of all stakeholders. In addition, redesigning commerce means creating new business models that demonstrate and support the value of sustainability-based commerce (Interface, 2015).

Research indicates that companies that embed sustainability as a core value are significantly more innovative and typically have a greater return on investment (ROI) than competitors (Lubin and Esty 2010). An organization's engagement with sustainability can be described on two dimensions: vision for sustainability (integrated vs. fragmented) and

execution (strategic vs. tactical). The better performance is likely due to multiple factors such as savings in efficiency, reduced waste, and that sustainability focused management teams are more agile and innovative in their responses to unforeseen disruptions given their commitment to new ways to do business.

An example of this type of success is the extremely innovative company 3M. Their commitment to sustainability is demonstrated in three ways: first they changed their manufacturing and company practices; second, used their newly acquired knowledge to create a consulting company that helps other corporations become more sustainable; and third, they lobby the government to increase regulations that require all companies to become more sustainable (Winston 2012). 3M's profitability and deep engagement with sustainability demonstrates that becoming sustainable can also be very good business.

Some business strategists argue that an ultimate business advantage is achieved through an implementation of corporate social responsibility (CSR) in the community where a corporation operates (Porter and Kramer 2011). Such examples suggest that values such as sustainability, broadly construed, can even be embedded by design within business processes.

Both 3M and Interface demonstrate a designed transition from unsustainable and defuturing practices to more sustainable practices. Both companies reduced waste, increased efficiencies, invented new ways of doing business, and capitalized on their knowledge by creating consultancies that help other companies engage in transitions toward more sustainable practices. Both companies engaged in advocating for broad, systemic change. In summary, their own transition toward more sustainable practices occurred on multiple levels and created incredible opportunities for them to succeed (3M 2015; Interface Sustainability 2008).

Perhaps what distinguishes both 3M and Interface from their industry competitors was their desire to become industry leaders in sustainability, demonstrated by perseverance, intelligence, and commitment to purpose. Both companies demonstrated clear design intent, undeniable design intelligence, longitudinal thinking, expanded definition of context, and systems thinking. In both examples, the preferred solution they envisioned likely included a broad range of people, the environment, and perhaps even the planet. In terms of the Transition Design Framework the leaders and designers of the Interface and 3M transitions demonstrated a clear vision (3M 2015; Anderson 2009), which involved a mindset and posture toward changing their organizations, from their manufacturing processes, products, and business models to have a positive impact.

The two examples above required an extreme makeover from products, operations, processes, business models, and so forth. Both companies showcased many types of design collaborating to transition from decisively unsustainable companies to become more sustainable. To state the obvious, not all corporations are yet committed to sustainability. Perhaps through interventions that demonstrate the benefits of having more mindful, future-thinking practices and behaviors, these companies will continue the trajectory set by others like 3M and Interface.

Organizational Transition Design projects will likely vary significantly based on the positioning with regards to vision for sustainability and execution. Transition designers can work with any organization willing to engage in transitioning to more sustainable practices. Obviously, the amount of progress possible depends on vision and execution.

Who designs transitions?

Herbert Simon defines designers as 'Everyone … who devises courses of action aimed at changing existing situations into preferred ones' (Simon 1996: p.111). As mentioned previously, Simon's definition raises the question of: 'preferred situations' for whom? Simon thus acknowledges many potential designers engaged in design of the artificial and many preferred situations. Design problems with multiple stakeholders and a broad range of designers may struggle to converge on a single 'design intent' and its preferable outcomes. Deciding on the stakeholders and designers in a transition design project clearly influences the agreement on a problem and a solution.

The question of 'preferred situation' and 'who is a designer' hides a paradox for all forms of transition design. First, by limiting the scope of the 'preferred situation' to exclude the whole system the design problem can easily reduce the explorable design space. Limiting the design space also reduces the possible combinations and likelihood of innovative solutions. Second, by limiting who can be involved in the transition design process one removes complexity from the system and the possibility of creating shared agreement between stakeholders.

Integration and conflict in transition design

Currently, our survival at a planetary level is reliant on technology and modern infrastructures. With seven billion people on the planet we are beyond the point of no return. Without our modern infrastructure and information technology, the food in supermarkets would run out in three days. Billions of people would die if we moved away from that technology abruptly (Kelly 2010). We need technology to live and yet the current technological paradigm is unsustainable. The question is not about transitioning away from technology to a pre-industrial era to live in Luddite villages, but rather questioning the role of technology in the transition toward sustainable futures. What role might technology play in the societal transition toward sustainable futures?

Likewise, pitting different paradigms of scientific inquiry against each other is unhelpful. Both the reductionist science perspective – focused on isolated phenomena in great detail – and the holistic science perspective – focused on the whole at a high level – are needed to resolve the mess we are in. In other words, new interpretations of those cultures, new integrations, new invention, and new understandings are needed to transition forward in a new way (Buchanan 1995; McKeon 1968; McKeon 1987).

It may be easy to pick a fight with reductionist science and argue for wholism (Capra 1997). These are different paradigms of knowledge and ways of seeing the world. It is tempting to side with the perspective that confirms one's own worldview (Manjoo 2011). However, in the current situation both extremes are unreasonable and such debates are beside the point. We understand the critiques and now need to seek new understanding, integration, and action (King and Kitchener 1994).

Transition design and types of design

Richard Buchanan introduced the four orders of design to describe how different types of design can be understood as either fixed in their definition or ambiguous places from which new ideas emerge. The fixed understandings are as follows: first order as symbolic and visual

communication (signs and symbols), usually understood as communication design; second order as material objects, usually understood as the realm of industrial product design, third order as activities and services, usually understood as service design and logistics; and the fourth order as complex systems and environments for living, working, playing, and learning, usually understood as systems engineering, architecture, and urban planning. The four orders of design become places of innovation when, for example, material objects are explored as part of a complex system or environment (Buchanan 1992, 1995, 1998). While at first blush complexity seems to reside in the higher orders of design, it is clear that when designers explore first order design, even symbolic and visual communication can extend into fourth order when they are incorporated into complex systems and environments for living, working, playing, or learning.

Transition Design, as previously described, gives a particular direction and end goal to the four orders of design. In other words, a subset of the four orders of design operate within the realm of Transition Design when two conditions are met: first, the design intent is a 'societal transition to a more sustainable futures' and second, the design path pursued 'applies an understanding of the interconnectedness of social, economic, political and natural systems to address problems that exist at all levels of scale in ways that improve quality of life.' In summary, all design is a transition design of sorts because it goes from problem state to solution state, but only a subset of design meets the current definition of Transition Design.

While some may believe that transition design problems range from simple to complex as one increases in level of scale, complexity is present even in the smaller scales. For example, Meredith Davis explains that complexity expands within the field of communication design according to complexity and human experience (Davis 2008). As complexity and human experience increase, communication design goes from logo design, to corporate identity, to branding, to service design. In other words, within Buchanan's first order of design, signs and symbols, also known as the traditional practice of communication design, there is a range from simple to complex and from artifact to experience.

Hence, communication designers need the tacit 'making skills' to craft artifacts but also the explicit 'thinking skills' to craft within more complex experience based systems. The current articulation of Transition Design focuses on lifestyles and forms of everyday life as a platform for societal transitions to sustainable futures. Complexity will be encountered at all levels of scale (Irwin, Tonkinwise, and Kossoff 2013). Obviously, types of complexity will inevitably vary based on the levels of scale and the socio-ecological contexts that shape choices (e.g. individual, family, organization, community, public policy, and so forth; Bronfenbrenner 2005).

The complexity that transition design needs to address is not limited to Buchanan's four orders of design. Jay Doblin describes three levels of complexity in design: product, unisystem, and multisystem (Doblin 1987, 6–16). Products, such as tangible objects or communications, are the simplest type of design. Unisystems are defined as 'sets of coordinated products and the people that operate them' and sound eerily similar to services, with touchpoints and service providers. Multisystems are 'sets of competing unisystems' such as categories of competitors in a field such as Apple, Google, Microsoft, IBM, and so forth (Doblin 1987, 6–16).

Products and unisystems seem to fit nicely into the four orders of design. Multisystems are like the ecology that contains competing unisystems, in which some aspects are designed by external organizations such as government entities or standards organizations. Multisystems likely emerge from the interactions between all actors involved over time. However, they seem to lack cohesive design intent and evolve without a strong designer guiding the whole

process. The lack of singular strong design intent and guiding designer makes the multi-system seem like something different from fourth order design, but is the result of multiple systems interacting.

Transition Design, with the ambition to shift whole societies toward sustainable futures, seems to operate at a higher level than multisystems. As such, the desired societal outcomes from Transition Design are likely to emerge from the interactions between Global Industry multisystems, governments, Non-profit multisystems, and so forth.

With Transition Design projects at the lower levels of scale, it seems reasonable to assume that 'design-led' means a lot of 'design intent' and 'designer fiat' shaping transition design processes directly. However, at the higher levels of scale (e.g. societal or planetary) it seems like 'design lead' means something like 'emergent design' or what 'design goes on to design' (Fry 2009, 34). In other words, 'emergent design' is the result of complex interactions between many types of designs and less like designer lead 'intent' and 'fiat.' In short, at the lower levels, designers design directly and at the higher levels the consequences of the lower level designs interact to create and emergent design. Clearly the materials being shaped and the roles of designers differ at different levels of scale. Perhaps the confusion can best be articulated by the following question: is emergent design lead by design intent?

Doblin distinguishes products, unisystems, and multisystems on a continuum ranging from focused on performance to focused on appearance. Reflecting on Tony Fry's work, one might add a third dimension with two extremes: on one end futuring, transitioning toward more sustainable futures (Fry 2009), and on the other end defuturing, transitioning toward less sustainable futures (Fry 1999). Placing futuring and defuturing as extremes on an axis simplifies their complex relationship; it also makes clear that in making something, something else is destroyed.

Futuring has people committed to pursuing 'sustainment' in their daily lives and professional practices. Defuturing decreases when enough people bind themselves to pursue 'sustainment' and redirect their lives and practices toward futuring (Fry 2009). Yet in the transition toward sustainable futures, both futuring and defuturing practices coexist in people, organizations, unisystems, multisystems, and so forth. Transition Designers will find themselves embedded within an emergent global network of sorts with actors and designed products committed both to futuring and defuturing. Transitional times certainly are confusing.

The role of corporations in Transition Design at the time of writing this paper is unclear. Yet, the connection between sustainability and business has been explored by many designers, businesses (e.g. Interface, 3M), and so forth. Nathan Shedroff's (2009) book *Design is the Problem* describes ways to engage business with sustainability by design. Even Tony Fry's book *Design Futuring* lays out a foundation for practitioners to redirect their design practices to help shift how companies operate (Fry 2009). Wasserman, with his work with the World Business Council for Sustainable Development (WBCSD) (Collective Invention 2009) and Social Capital Markets (SOCAP) (Collective Invention 2010), explore the link between business and sustainability. Furthermore, Harvard Business School Professor, Michael Porter (2013), argues that corporations have a strategic advantage through corporate social responsibility in the communities where they operate and thus can help shift societies toward more sustainable practices at scale. In the United States alone, corporations manage $20.1 trillion compared to the $1.2 trillion of non-profits, and $3.1 trillion of government. With close to

five times the amount of resources, corporations clearly have the strategic incentive and capacity to help shift society toward sustainable futures at scale (Porter 2013).

The challenge for Transition Design is to define enough to inform people about the goal, provide enough scaffolding to support the complexity at hand, but not overprescribe the path to get there, leaving enough ambiguity to encourage creative reinterpretation, thinking, and design.

Summary

Transition Design is a type of design that aims to shift societies to more sustainable futures through the understanding of the 'interconnectedness of social, economic, political and natural systems to address problems at all levels of scale in ways that improve quality of life.' (https://en.wikipedia.org/wiki/Transition_design) In this paper, I have argued that Transition Design, so defined, is a particular case of a more general activity called transition design. Transition Design differs from previous understandings of design in two major ways: first, it has a definition of a 'preferred' outcome – shifting societies to sustainable futures – and second, it suggests a pathway to get there through the 'understanding of the interconnectedness of social, political, and natural systems to address problems of all levels of scales.' (https://en.wikipedia.org/wiki/Transition_design) In the current articulation of Transition Design it is unclear what role business and global corporations might play to help transition societies toward sustainable futures at scale. Clearly some businesses are the problem, but other businesses such as Interface and 3M have demonstrated that even industry leaders can transition their operations away from unsustainable practices to more sustainable practices and be extremely profitable. Nathan Shedroff's book *Design is the Problem* explores how to engage business by design. Other examples include Wasserman's work through Collective Innovation with entities such the World Business Council on Sustainable Development (WBCSD), and Social Capital Markets (SOCAP). Furthermore, Michael Porter's more recent writings can be interpreted to mean that the connection between business and transition design is a strategic connection to be explored. Clearly, transitioning toward societal sustainable futures involves many stakeholders, designers, and types of design thinking. Although the term Transition Design is new and the paths prescribed are different from previous types of design, the power of design to transition to more desirable futures is unquestioned.

Notes on contributor

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