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Analogies and Distinctions: Mapping Social System Identity

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Abstract
The concept of "identity," with groundings in systems traditions from cybernetics and soft/critical systems to complexity/resilience and network theory, holds significant potential for the development of systemic design. These systemic groundings can inform understandings and interrogations of the constructed and interrelated nature of individual, organizational, and social identities, of divergent perspectives on social system stability and change, and of design activities that seek to engender transformative change. We use a visual approach to depict and describe an identity-based model of social-ecological interrelationships, a method for mapping analogies and distinctions in selected and bounded social systems and scenarios, a canvas for imagining and analyzing social system stability and change, and a set of diagrammatic variations on this design pathway. We conclude with a list of questions that might inform such mappings.

Keywords: bridge model, institutional logics, landscape model, regime shift, sensemaking and strangemaking

1. Introduction

Systemic design focuses on situations of greater "scale, social complexity and integration" than service or experience design (Systemic Design, accessed 2018). This is an exciting and much-needed area of exploration. Efforts to develop the theory and practice of systemic design face both challenges and opportunities. One is: how might the various systems traditions (cybernetics, soft/critical systems, complexity/resilience, networks, and so on) provide conceptual groundings for design practice in complex social situations? Another is: how might the conceptual tools (models, methods, metaphors, and so on) of design in the narrower sense – the design of artifacts and communications, products and services (i.e., design 1.0 and 2.0, in Jones 2014) – be repurposed for design in the broader sense – design for organizational and social change (i.e., design 3.0 and 4.0, in Jones 2014)?

We engage with these questions by describing a model, method, canvas, and variations for mapping social system identity. Throughout this paper we utilize and investigate the types of visual sensemaking techniques that have proven valuable to systemic design (Sevaldson 2012/2017, Jones and Bowes 2017).

The types of mappings we describe and depict will likely be familiar to practitioners of systemic design. Relevant examples are illustrated, for example, in Sevaldson (2012/2017), Jones (2013), and Jones and Bowes (2017). We aim to contribute not methodological novelty but rather to a discussion of systemic and designerly groundings.

2. Model

"When does a system retain its identity and continuity through change and when does it itself vanish or become something new? These questions are of great practical concern in the context of systems design."
– Béla Bánáthy (1996:161)

In this section, we describe an identity-based model that might afford systemic groundings for one's design practice.

Numerous systems theorists have used the concept of "identity" to characterize continuities and discontinuities in the experience and analysis of social and/or ecological life. These include: Allena Leonard (cybernetics), Geoffrey Vickers (soft/critical systems), Brian Walker and David Salt (complexity/resilience), and Harrison White (networks).

For example:

Leonard (1990/2004:33): "An identity is the mark of a whole, an indication of a distinction which may be consistently recognized or which persists over time."

Walker and Salt (2012:215): "Identity: The essential nature of a system (an individual, an ecosystem, a society) based on the way it functions and on its defining structural characteristics."

Based on a systemic approach, Silverman and Hill (2018) depicted a model to recursively link individual identity development with that of organizational, social, and ecological systems. We defined a model as a representation and abstraction that can be used in investigating and understanding how things work (Friedman 2003). In describing and depicting this model, we followed Friedland and Alford (1991:242), who specified three levels of relations (individual-organizational-social, micro-meso-macro) as "necessary to adequately understand society," and we added a fourth, ecological level to this specification. From complexity/resilience theory, we adopted the "landscape," "attractor," and "regime" concepts for representing stability and change in identity development, at each level of the scalar model (Byrne and Callaghan 2014).

This Silverman and Hill (2018) model is reproduced here:

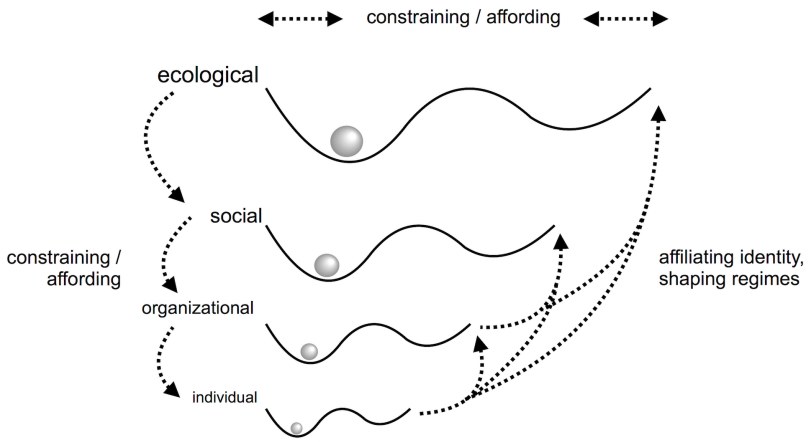

Figure 1: Landscape model of individual-to-ecological, identity-based stability and change.

This model may seem familiar or intuitive, as it is but a bricolage of existing ones. Theorists have used landscape and/or other attractor-based models to describe stability and change at each of these levels, i.e., in individual (Lewin 1947/1951), organizational (Morgan 1997), social (Westley et al. 2011), and ecological (Sheffer 2009) systems. What no one had done (that we are aware of) is to use the concept of identity to recursively link individual-to-ecological landscapes into a scalar model, and then to analyze the dynamics depicted therein.

What then is the value of this model? What "story" does it "tell"?

First, this model serves as a visual example of a specifically constructivist-realist ontology (MIngers 2014). This model reflects a constructivist ontology, e.g., in that it enables an examination of how systemic patterns of social relationships are "constructed" by people, individually and collectively. And this model reflects a realist ontology, e.g., in that it enables an examination of how such patterns of social relationships are constrained and afforded by ecological realities.

Second, by linking individual, organizational, and social systems, this model affords a micro-meso-macro examination of identity development. In these terms, to participate in an established regime is to affiliate one's own identity with that of the regime, i.e., with the regime's "logics" (i.e., social factors, structural characteristics, essential relationships). Likewise, to identify with an alternative (i.e., potential, nascent, or niche) regime is to imagine and/or seek alternatives for one's affiliations of identity. In these terms, a social attractor is a constellation of logics, the "attraction" to which, among people, individually and collectively, serves to stabilize the regime. Particularly in contemporary life, each of us experiences many such systemic affiliations/entanglements, such that "[p]ersons consist of a bundle of these identities" (White 2008:17).

Systemic design requires a "[t]olerance for ambiguity and uncertainty," wrote Banathy (1996:54). The embodied/entangled identity depicted in Figure 1 posits a particular type of ambiguity and uncertainty: the dissonance of participating in an existing regime, while at the same time potentially identifying with an alternative. In these terms, designers face the challenge of seeking to purposefully transform the very systems in which we/they are embedded.

Based on this analysis, we illustrate and rephrase the initial questions posed in the introduction:

- **How might one distinguish (draw analogies and distinctions) among systems tools?** For example, Silverman and Hill (2018) examined social systems in terms of "regimes," while others have conceptualized them as, for example, "assemblages" (DeLanda 2016). Below, we investigate alternative approaches to what we have labelled social factors or logics.
- **How might a tool developed in one context be useful in another?** For example, Silverman and Hill (2018) investigated the stability landscape model, adapting it for use in linking individual-to ecological systems. Below, we investigate Hugh Dubberly and colleagues' (2008) bridge model, adapting it for use in a specifically systemic design context.

3. Method

"We are always in situations, never outside them."
-- Ray Ison (2010:37)

Situations, focal systems, regimes, and logics: this is a framework for an embodied ontology. Your situations and mine may overlap, but always imperfectly. Even when aligning our situational attentions, we might differently experience the affiliations of, differently draw the boundaries of, and/or differently characterize patterns of systemic relationships: the focal systems.

In this section, we illustrate and investigate interrelationships between people, focal systems, regimes, and logics through a case-based visual examination of three existing narratives. Then we look for patterns (draw analogies and distinctions) across these three cases.

First, a recent U.S. news headline: "Utilities have a problem: the public wants 100% renewable energy, and quick," (Roberts 2018). In this headline (and article, by David Roberts), the focal system is described at the social level as U.S. electricity provision. The dominant regime for such provision is described as fossil fuel generation, and the alternative as renewable energy generation. The logics that effectively stabilize the identity of the dominant regime are the institutional structures, including utilities. These are named as the dominant factor in the regime's inertia or "path dependence" (Page 2006:87). Meanwhile, the nascent emergence of an alternative regime is strengthened by the shifting logics of public values and/or goals. We use the landscape model to visualize this narrative (Fig. 2).

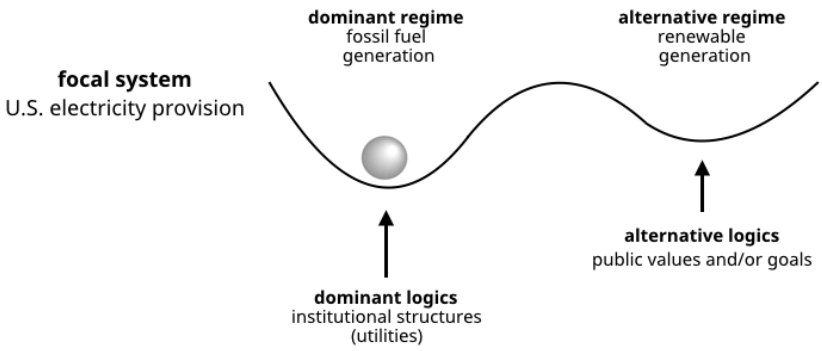

Figure 2: Visualizing stability and change with the landscape model, following Roberts (2018).

Second, Geoffrey Vickers on his home town, a brief passage under the heading "identity and continuity" (1981:20):

> My home town remains for me its old self though it has vastly grown and changed, and I have long since ceased to live there. But if some other old inhabitant said that for him it was no longer the same place, I should not assume that he or I must be wrong. I should only assume that some relationships now lacking were for him essential to the system called by that city's name, whilst for me they were not.

VIckers and his compatriot agree on boundaries -- they are both focused on "the system called by that city's name." However, they do not agree on the "essential relationships" through which the identity of the city is experienced.

Vickers does not tell us which relationships he or his compatriot consider essential. If we could observe and interview them, what might we learn? For the purpose of this mapping, we hypothesize that, for Vickers, the town's essential relationships are defined by friendships and particular places,

and for his compatriot they are defined by traffic and safety. Here then are simple diagrams of the relationships experienced by each (Fig. 3).

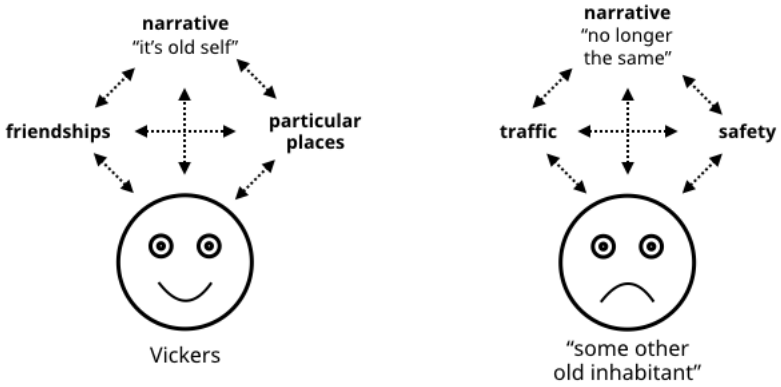

Figure 3: Identity and continuity in "my home town," following Vickers (1981) and hypothesizing essential relationships for both Vickers and his compatriot.

Based on and illustrated in this visualization, we propose:

- A web of essential social relationships connects a set of nameable nodes. These nodes are the social factors that we describe as logics.
- The narrative that one forms/adopts for the system is itself among the logics of the system.
- Experiences of social system identity and individual identity are interrelated. Vickers becomes invested in the narrative of "it's old self," while his compatriot becomes invested in the competing narrative: "no longer the same." While Vickers experiences a sense of belonging, his compatriot experiences the dissonance of living in a place where this sense of belonging has diminished or vanished.
- Vickers experiences/identifies logics for which there is continuity with the past. His compatriot experiences/identifies logics for which there is not continuity. For Vickers, the town has undergone an adaptive change. For his compatriot, the town has undergone a transformation to a different regime.

Third, the musical innovations of Harry Partch, based largely on the interpretation by sociologist Howard Becker (1995). Silverman (2017:138-9) summarized this narrative:

> Consider the story of 20th-century musical innovator Harry Partch, recounted in sociologist Howard Becker's "The Power of Inertia." Partch created a nontraditional 43- tone musical scale and achieved some recognition, including Guggenheim grants and a concert at Carnegie Hall. He also encountered systemic difficulties. To stage a performance of his music, Partch had to devise a notation for his compositions, had to build his own instruments, and had to teach people to both read the new notation and play the new instruments. The notation, the instruments, and their practiced performance are each components of a social system, sometimes called a package or assemblage or, in the terminology of resilience and transition theory, a regime. Notation, instruments, practiced performance: each reinforces the utility

and value of the others, strengthening the stability of the regime as a whole. With his 43-tone alternative, Partch challenged the dominant regime of classical music composition, but the old regime proved more resilient.

In mapping this narrative, we use a simple table of analogies and distinctions, comparing continuities and discontinuities in the logics of the dominant classical regime and of Partch's alternative (Fig. 4). This tabular format of factor-by-factor analysis dates back at least to Mary Hesse's writings on "models and analogies in science," in which the columns are labelled "causal relations" and the rows, "relations of identity or difference" (Hesse 1963/1966:59).

Our mapping approach is analogous to those of analogy theorists (e.g., Hesse 1963/1966, Gentner and Markman 1997, Hofstadter and Sander 2013), and there are distinctions as well. In particular: the models we compare are of social systems (i.e., regimes); we include a column for naming the factors or logics by which the models are compared; and our "stance" is designerly rather than descriptive or scientific (Silverman 2015:717), that is, mappings are developed so as to inform prospective engagement with situations of concern or opportunity.

Naming the logics (e.g., the center column in Fig. 4) can be useful in several respects. First, for students of systemic design, naming these logics can serve as a metacognitive exercise: inducing (i.e., inductively naming) a category based on a pattern. Second, in practical terms, naming these logics can serve as a strategic step toward imagining by analogy the specifics of an alternative regime. Third, one might refer to systematic lists of such social factors or logics, to inform one's efforts, as we survey below.

classical regime	logics	Partch's alternative regime
equal temperament	narrative	just intonation
professionally constructed	musical instruments	constructed by Partch
standardized in 1700s	notation	developed by Partch
core repertoire	compositions	composed by Partch
core practices	performance techniques	taught by Partch
transactional, professionalized	economics	transactional, professionalized

Figure 4: Systems of music making, following Becker (1995) and using the concept "regime," where Becker used "package."

Next, we discuss analogies and distinctions across these three examples of mapping social system

identity: U.S. electricity provision (landscape), Vickers's home town (pattern of essential relationships), and classical music versus Partch's innovations (table).

One insight is about the attractions of narrative. In mapping Vickers home-town narrative, we recursively emphasized the importance of narrative, for both Vickers and his compatriot. However, in Becker's narrative of inertia, he does not recursively emphasize Partch's own narrative. Partch based his alternative to the 12-tone, equal-temperament classical scale on a rationale with ancient traditions, both East and West: the just intonation of musical intervals. No doubt the strength of this rationale or narrative helped him to attract participants.

A second insight is about the investigative stance that each narrative author and actor adopts. Roberts adopts a designerly stance, that is, he prospectively seeks alternatives to the current regime of electricity provision. Vickers, in this brief passage about his home town, adopts a descriptive stance. Becker also adopts a descriptive stance, as he describes Partch's designerly stance, which was prospective for Partch but is retrospective for Becker's readers.

A third insight is that a range of logics may be required to nurture an alternative regime. Partch had to, as Becker emphasized, create logic-by-logic alternatives: instruments, notation, composition, techniques of performance. Each is essential; each contributed to the viability of an alternative music regime. What are the essential logics in the focal system of, for example, U.S. electricity provision? Much attention has naturally been devoted to alternative technologies for generation (solar, wind, etc.). Based on this one article (Roberts 2018), one might hypothesize that strategic effort is less needed with regard to public values and/or goals than it is with regard to the institutional structures of generation, transmission, and/or distribution.

Another insight lies in the diversity of logics across the three narratives in this case-based examination. Given this case-based diversity, we turn to systematic frameworks, i.e., theoretical characterizations of social factors or logics. Numerous theorists have described social systems at a first level of granularity, as comprised of structural, cultural, and/or material characteristics (e.g., Schön 1971, Archer 1995). Others have offered greater detail, listing a "design pallet of particulars" (Nelson and Stolterman 2012:86-91).

These three examples, from three fields of study, exhibit both similarity and diversity:

- Harold Nelson and Erik Stolterman (2012), design
- Patricia Thornton and colleagues (2012), organization and management studies
- Bruno Latour (2013) / An Inquiry into Modes of Existence (accessed 2018), anthropology, philosophy

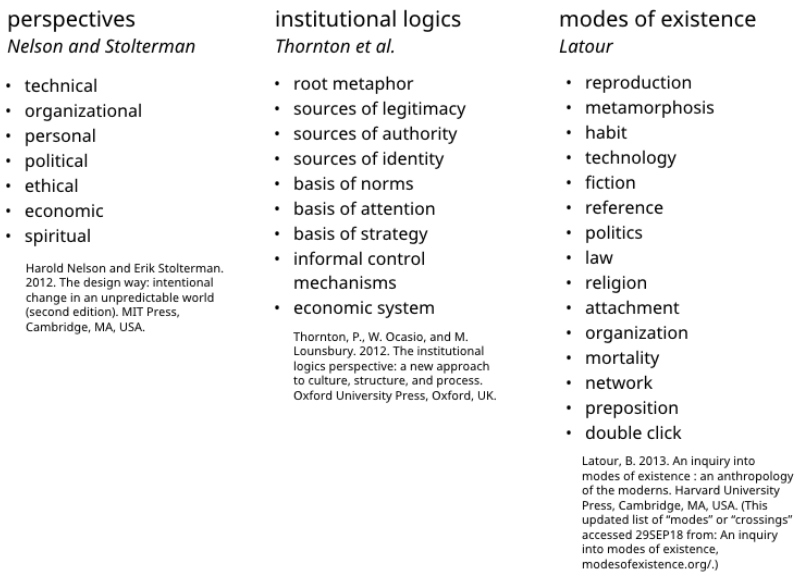

Figure 5: Examples of "design pallets" for characterizing social system identity

In order to further explore this method for mapping social system identity, we developed a canvas.

4. Canvas

"At all events, we shall not cure the Moderns of their attachment to their cherished theme, the modernization front, if we do not offer them an alternate narrative made of the same stuff as the Master Narratives whose era is over—or so some have claimed, perhaps a bit too hastily."
-- Bruno Latour (2013:22)

In developing a Regime Shift Canvas, we adopted Dubberly et al.'s (2008) bridge model for its simple and effective, designerly depiction of a regime shift pathway. At the same time, our use of the bridge model meant that we would have to adapt it to a specifically systemic design context. In this section, we describe the bridge model and our adaptation. The current version of the canvas, a work-in progress, is attached as an appendix.

Drawing upon and comparing "several antecedents and variations," Dubberly et al. (2008:58) described an "analysis-synthesis bridge model" that "makes explicit the role of modeling in the design process" (Dubberly et al. 2008:59). The bridge model depicts a four-node, three-arrow pathway whereby (1) the existing reality of what 'is' is distilled to (2) a model of what 'is,' which then suggests (3) a model of what 'could be,' which then aids in manifesting (4) what 'could be' (Dubberly et al. 2008:57).

In design 1.0, these models of "what is" and "what could be" are familiar as blueprints, wireframes, sketches, and diagrams of material and/or informational artifacts. However, in our adaptation of the

bridge model, we use the terms “model of what is” and “model of what might be” specifically to indicate mappings of a regime, existing or potential.

In effect, we have developed a bricolage of systems and design concepts, which can be illustrated by mapping the landscape model to the bridge model (Fig. 6).

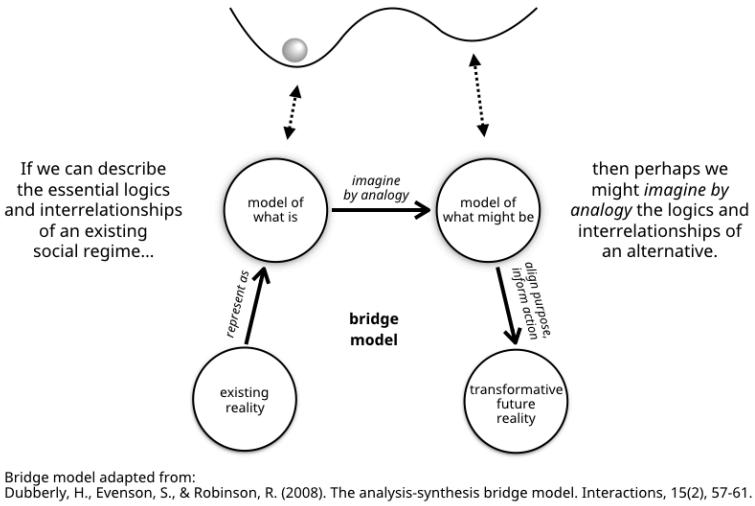

Figure 6: Landscape model mapped to the bridge model

In adapting the bridge model we have adjusted the original language in several places. One significant distinction is that we replaced Dubberly et al.’s (2008) “suggest” (the second, horizontal arrow on the bridge model pathway) with “imagine by analogy.” By definition, a regime shift is transformative. The process of moving from a “model of what is” to a “model of what might be” requires discontinuity. In design, this might be described as a process of “synectics” (Prince 1970) or “strangemaking” (VanPatter and Jones 2009). This use of analogical imaginaries is one way to formalize a strangemaking process.

Figure 7 is an example of a Regime Shift Canvas mapping, by Ophir El-Boher, a Master of Fine Arts (MFA) student at Pacific Northwest College of Art (PNCA) in Portland, Oregon, USA.

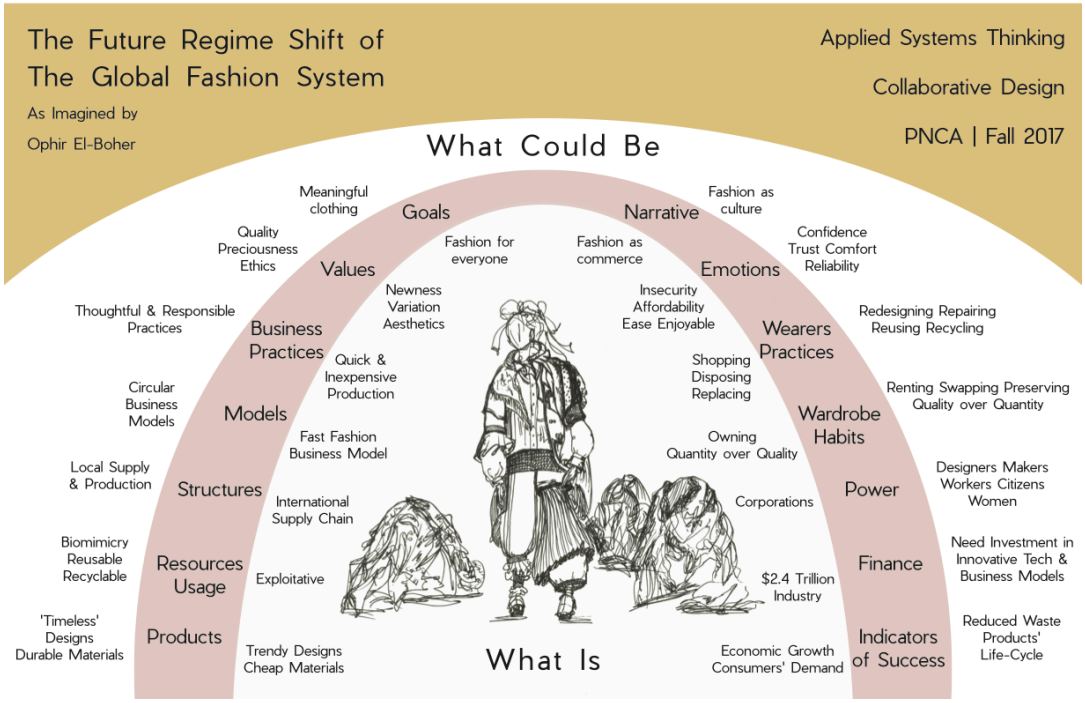

Figure 7: Mapping based on regime shift canvas (Ophir El-Boher)

5. Variations

"Without a sophisticated theory of analogy, there is only the negative dialectics of difference."
– Barbara Maria Stafford (1999:51)

In developing and describing the bridge model, Dubberly et al. (2008) drew analogies and distinctions among "several antecedents and variations." Given contemporary efforts to develop the theory and practice of systemic design, as distinct from design 1.0 and 2.0, we think it is useful to be explicit about diagrammatic variations on the bridge model pathway.

In this section, we diagram three such variations. Each features mappings (i.e., models) of social system identity, and each represents a variation on the linear bridge-model-as-regime-shift pathway.

The first variation is informed by the mappings of divergent perspectives on Vickers's home town (Fig. 3). A design strategy for reaching alignment among such divergent perspectives might be to elicit these perspectives and create mappings of each, as a basis for comparison and conversation. This strategy is illustrated in Figure 8, below. In effect, this divergent perspectives diagram illustrates efforts to reach alignment on the "model of what is," i.e., the second node on the bridge model pathway (Fig. 6).

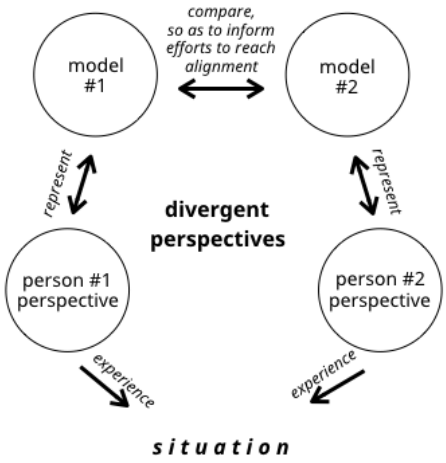

Figure 8: Divergent perspectives diagram

The second variation (Fig. 9) illustrates a reference <> target situation, in which one looks to a "reference" context to inform one's efforts in a "target" context, creating a mapping of each. This type of mapping and terminology draws upon the literatures on models and analogies in science (Hesse 1963/1966, Gentner and Markman 1997) and on case-based reasoning (Aamodt and Plaza 1994).

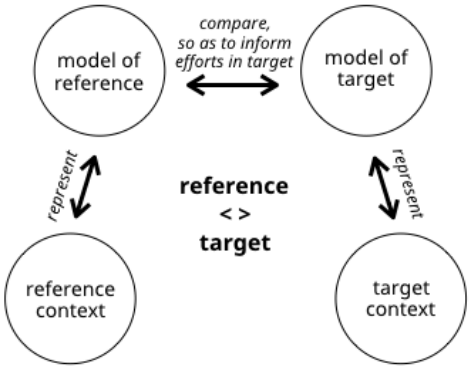

Figure 9: Reference <> target diagram

An example of reference <> target mapping in a systemic design context is illustrated below. Crystal Rome, as part of her PNCA MFA thesis work, mapped analogs on a project with the Association of Independent Colleges of Art and Design (AICAD). In examining the question of how AICAD might better function as a learning network for its member colleges, Rome performed interviews with AICAD leadership and membership, and then researched two examples of successful learning networks as references for this mapping: the Green Sports Alliance (GSA) and the interorganizational Biotech network described in Powell et al. (1996). Here, the social factors or logics, described as

"parameters," are listed on the left, and the target model is in the center column, in between the two reference models (Fig. 10).

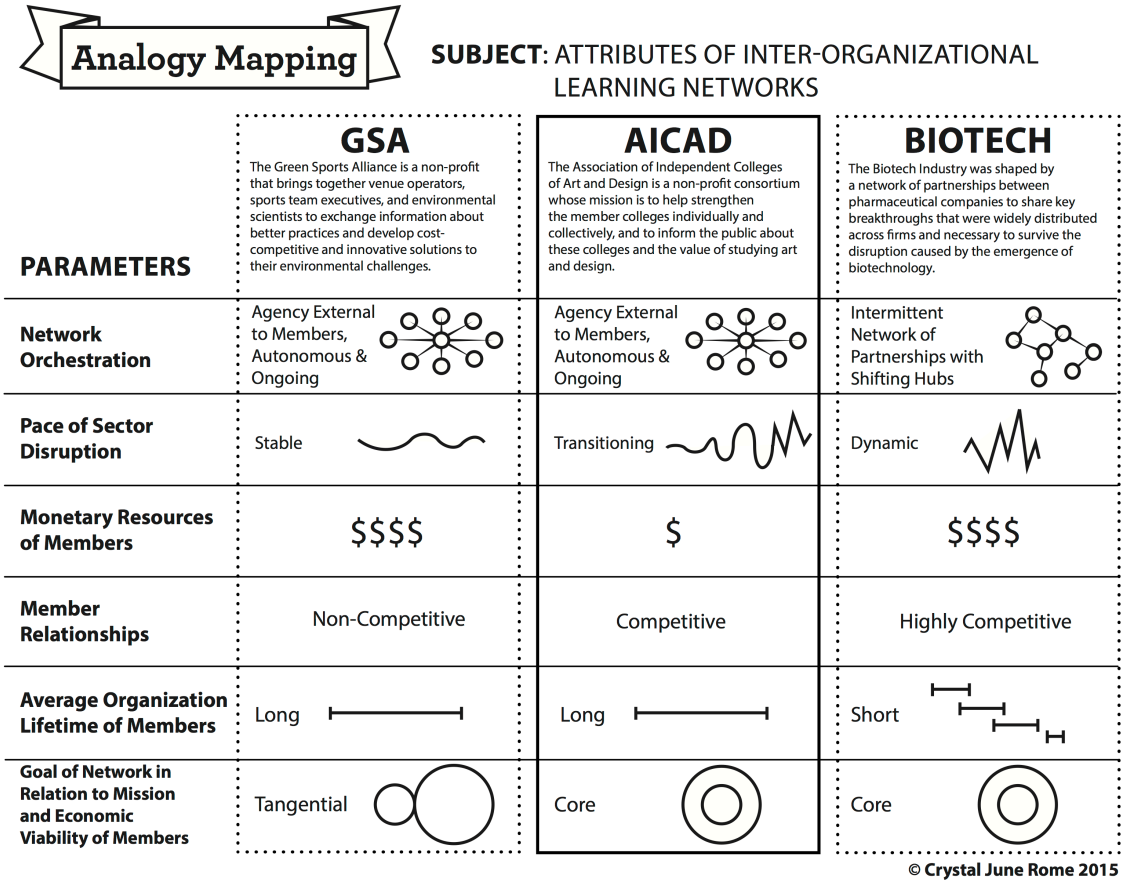

Figure 10: Example of reference <> target mapping (Crystal Rome)

A third variation is one that, like the bridge model, describes a regime shift from what is to what might be. But unlike the bridge model, it complicates the prescription of a linear, present-to-future pathway for design. Drawing upon foresight studies, this variation might be called: foresight <> backsight. Figure 11 is an interpretive, diagrammatic representation of the Three Horizons process (H3Uni, accessed 2018), in which models of "what is" and "what might be" are used as endpoints to inform the development of intermediate innovation strategies, i.e., tangible transition efforts that might lead to the desired future. An example of Three Horizons mapping can be found in Jones and Bowes (2017).

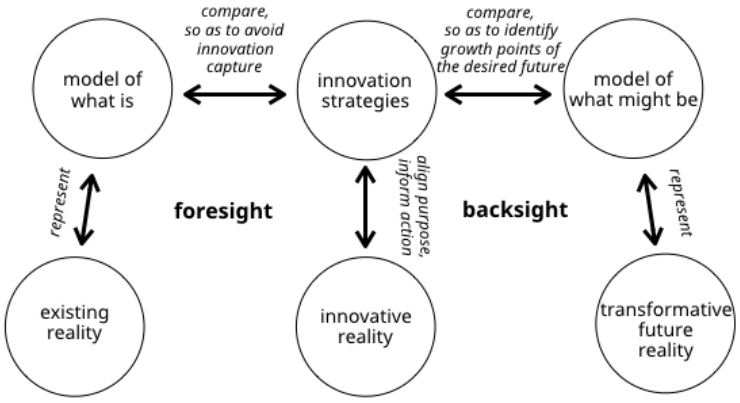

Figure 11: Foresight <> backsight diagram (based on Three Horizons process)

6. Conclusion

We posed two introductory questions, regarding: systemic groundings for designerly practice, and the use of design tools in a specifically systemic design context. We engaged with these questions through a step-by-step process of visual sensemaking (model, method, canvas, variations). Our emphasis throughout has been on analogies and distinctions, in particular a critical examination and repurposing of conceptual tools, with attention to these tools' reference and target contexts.

We used this approach to investigate ways of mapping stability and change in social system identity. In summary, here are some questions that might inform such mappings:

- Is there agreement on the situation of attention? On the boundaries of the focal system? How might differing focal system boundaries be experienced and/or imagined? By whom?
- Why is the dominant regime considered undesirable? By whom? In what ways do these undesirable aspects manifest as logics?
- How would one know which logics are most significant in stabilizing current and potential regimes? How and for whom are particular logics salient or essential? In what ways might "design palettes" of logics, like those depicted herein, inform one's investigations? (Additional questions to guide the formulation of logics are listed on the canvas, attached.)
- How might one visually depict the entangled identities of regime participants, individual and collective, so as to facilitate our/their acknowledgment, reflection, and investigation of such entanglements?
- Are there reference situations or systems, real or imagined, past or future, that might inform potential designs in the target regime?
- In addition: in what ways might systemic social change processes be diagrammed as variations on the bridge model pathway?

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