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When Is Systemic Design Regenerative?

Values, direction and currencies in systemic design methodology

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Abstract

When is Systemic Design (SD) regenerative? When does SD contribute to the societal sustainability transition? Systems thinking is not inherently good. For example, the practice of SD without ethical values and direction could be used to develop unsustainable land use policies that are resilient against changing them towards becoming restorative, such as currently experienced in the accelerated destruction of the Amazon rainforest. Given the urgency of transforming our societies towards being more sustainable, just and fair, SD has untamed potential and responsibility to inform, incubate and accelerate such change towards regenerative systems. Thus, we need to discuss and clarify the direction, values, ethics, boundaries of these pathways. As stand-alone concept and practice, SD requires values, direction and currencies to disentangle its full potential. This paper reports from a social «fishbowl» open think tank harvesting session at RSD8 Chicago 2019, where we explored what kind of values, direction and currencies may advance the academic discourse and the designerly practice of SD. This contribution to the RSD8 proceedings consists of two parts, the summarizing manuscript and a short movie giving insights into the social fishbowl settings, dynamics and results (<https://www.youtube.com/watch?v=5ATrCnAzze8>).

Introduction

Systemic Design (SD) as an emerging set of methods and methodology to address complex problems and drive systems transformation, is undergoing rapid developments. SD is challenged to evolve with the ever-growing complexity and speed of wicked problems caused by accelerating climate change, globalization and political conflict. Current advances in SD methods and methodology to evolve with such rapid developments comprise easier accessible and applicable variations of and additions to design thinking (like the Systemic Design Toolkit¹), while crossing and bridging traditional design disciplines (such as product design) with younger ones (such as digital service or game design). Recent discussions propose steps like “Holistic Diagnosis” (Battistoni et al. 2019) to add strategy to SD, which lead in the right direction. This discussion, however, is more centered within and across the broader design communities. More leverage and momentum are required to move ahead, since sheer visualization of complex systems and the appreciation of complexity (“so what?”) are not sufficiently capturing the potential of SD to help solving complex sustainability problems.

¹ <https://www.systemicdesigntoolkit.org>

Objectives and Structure

What seems to need more attention are 1. The societal benefits outside the field of the design communities' inner dialogue, relating to the potential (and responsibility?) of SD to respond to the urgency in addressing wicked sustainability problems and support the societal sustainability transformation, while better integrating other disciplines, "hard" science, data and practice; and 2. The need to inform governance, policy and management (design) decisions in a fuzzy and fast-moving world. For these two main objectives, the discussion needs to center around critically important, but so far rather neglected points of discourse: A. direction and associated B. values/ethics SD is taking, and C. currencies to guide and evaluate SD output. A-C direct how we move from system visuals and descriptions that are most valuable for the inner design community, to (partly) quantified and structurally prioritizable decision pathways supporting the entire society.

A "Values" and B "Directions" of Systemic Design

The practice of SD without ethical values and direction could be used to develop e.g. unsustainable land use policies that are resilient against changing them towards becoming restorative, such as currently experienced in the accelerated destruction of the Amazon rainforest. Given the urgency of transforming our societies towards being more sustainable, just and fair, SD has untamed potential and responsibility to inform, incubate and accelerate such change towards regenerative systems. Thus, we need to discuss and clarify the direction, values, ethics, boundaries of these pathways. Concrete suggestions are the alignment along the UN Sustainable Development Goals (SDG) (UN 2015) and the Planetary Boundaries (PB) (Rockström et al. 2009). The SDG allow for a clear direction including globally agreed values and ethical standards: the defined parameters for measuring progress in achieving the SDG provide quantifiable guidance for SD. The PB provide quantifiable ecological thresholds that further describe what SD solutions need to relate with. The existence of quantifiable values and direction are preconditions for extending SD methodology to inform objective C, the better use for decision making.

C "Currencies and Tools" of Systemic Design

The visualization of complexity has value in itself. Giga-mapping (Sevaldson 2018) is one tool that fosters learning about systems through design. Systems can be beautiful. But complexity does not equal complicate. Complex systems can be assessed with an either complicate or rather simple output, taking advantage of the structural properties of such systems that allow for identifying structural leverage hubs and partly-quantifiably relations (Berlow 2010, Meadows 2008). Without attempting to fully quantify such systems (i.e. systems dynamics or systems modeling, source), the approach of structural network modeling (SNM) is promising to advance SD for informing decision making in sustainability transitions (Holtz et al. 2015). SNM can feed from the sheer existence of nodes and ties, relating to measures such as centrality, modularity or clustering. In SNM, one zooms out of a system to understand its relations and properties to identify hubs or points of leverage, which allow for then zooming in again on the nodes and ties with most leverage in the systems, often one or two degrees away from the actual "problem" to solve (Berlow 2010). Information from Gigamaps could easily be transferred into SNM and provide initial prioritization support for "digging deeper" on the point of leverage, and for decision making.

Even more so, nodes and ties can be given a currency that relate with the above proposed values and direction. Flows of CO₂ or H₂O are examples for quite easy-to-measure currencies for

ecological boundaries, as are financial flows for economic boundaries. Many more such currencies exist, as well for social boundaries, like satisfaction, happiness and health. Established assessment tools like the carbon footprint or the (local) economic footprint² are widely available and highly beneficial to help informing decision in the complex, for example to map and improve supply chains. SNM and visual data storytelling tools like Openmapp³, and combined (supply chain) assessment and visualization tools like TRASE⁴ demonstrate the potential for SD, but such tools need to be further developed and fit for SD. This adds the question on (more) exchange, cross-fertilization and cooperation between design, academics, and practice, and new ways to teach the use of inter- and transdisciplinary tools and methods. The benefit of including more “hard science” via measurable flows and making them accessible is to guide design within the creative sectors, and inform decision and policy making to prioritize solutions that relate with societal desirable goals, embracing inherent complexity and fuzziness while still serving to take decisions.

Both, value direction (A,B) and structural partly quantifiable prioritization with easy-to-measure quantified flows as currencies and tools (C) can largely improve the capacities of SD to inform systemic innovation for sustainability, to (re)create regenerative resilient systems.

The Fishbowl

Format and Setting

As valuable contextual and social contribution to RSD8, this fishbowl “open think tank” consisted of a refreshing 60 minutes social exchange during lunch break on the second last conference day, Friday. 30 minutes after the lunch break started, when people had the time to arrive at the buffet, to bring some food and find the fishbowl open space, the fishbowl started as a welcoming lunch time alternative. The open space allowed to sit, eat and watch without interacting, or/and to jump in and contribute to the open round of circles from 30-40 chairs.

The fishbowl is a quite established but not so often used social harvesting format. One definition of a fishbowl format can be found on Wikipedia⁵: *“A **fishbowl** conversation is a form of dialog that can be used when discussing topics within large groups. Fishbowl conversations are sometimes also used in participatory events such as unconferences. The advantage of fishbowl is that it allows the entire group to participate in a conversation. Several people can join the discussion. Four to five chairs are arranged in an inner circle. This is the fishbowl. The remaining chairs are arranged in concentric circles outside the fishbowl. A few participants are selected to fill the fishbowl, while the rest of the group sit on the chairs outside the fishbowl. In an **open fishbowl**, one chair is left empty. In a **closed fishbowl**, all chairs are filled. The moderator introduces the topic and the participants start discussing the topic. The audience outside the fishbowl listen in on the discussion.”*

² <https://www.utopies.com/>

³ <https://www.openmapp.org>

⁴ <https://trase.earth>

⁵ [https://en.wikipedia.org/wiki/Fishbowl_\(conversation\)](https://en.wikipedia.org/wiki/Fishbowl_(conversation))



Figure 1. Setting of the fishbowl

It has an inner circle of five speaker chairs with further outer circles. The “living wall” to the left showed the overall question and goals, as well as supporting thoughts and citations related to the discussion of this fishbowl, as thought-stimulators. The visual notes boards in the back were managed by AHO students.

In the case of this session, we decided to combine the open and closed fishbowl by having two open chairs in the center with three chairs occupied by us, the organizers and moderators. The two free chairs could any time be taken by someone from the surrounding circles, and left again once a next person would want to take the word. One moderator began with stating the overall fishbowl question (“When Is Systemic Design Regenerative?”) and introducing the objectives 1 (“To embrace the potential (and responsibility?) of SD more for responding to the urgency in addressing wicked sustainability problems”) and 2 (“The need to inform governance, policy and management (design) decisions in a fuzzy and fast-moving world”) alongside the three main discussion points which provided structure to the fishbowl. The three main discussion points A-C were introduced and explained, together with a visual support from the surrounding glass/whiteboard “living walls”, where we wrote down prepared sentences and remarks explaining the scope and providing some concrete examples of these discussion points. During the harvesting process, us moderators would keep structuring the discussion alongside the main points A-C, do the time keeping, and stimulate the overall process by taking each one exaggerated “hat” of a designer, a scientist, and an activist. When the time was there to move from A-B and B-C, we would take the word and direct a stimulating question or remark from e.g. the scientist to the designer, challenging one each other by stating, for example, “Design needs to work with more quantitative data”, and this would fuel the discourse to help keep dynamics and the time frame.

Documentation and Content Analysis

The fishbowl was filmed and recorded for documentation and as the basis for the short movie we produced. Students of AHO took live visual notes on two glass-whiteboards (Figure 2), directly confronting the fishbowl circles, to help keeping track of the main discussion points. Originally, we planned to leave these visual notes to remain after the session until the next day, with extra free space to continuously add ideas and reflections that may keep coming up (by anyone). This in addition to the “Living walls” at the side so to say, a point of reflection, collection and further social exchange. But it showed that the tight schedule of using this space for next session did not allow for it, so the finished notes were photographed and then cleaned for better readability.

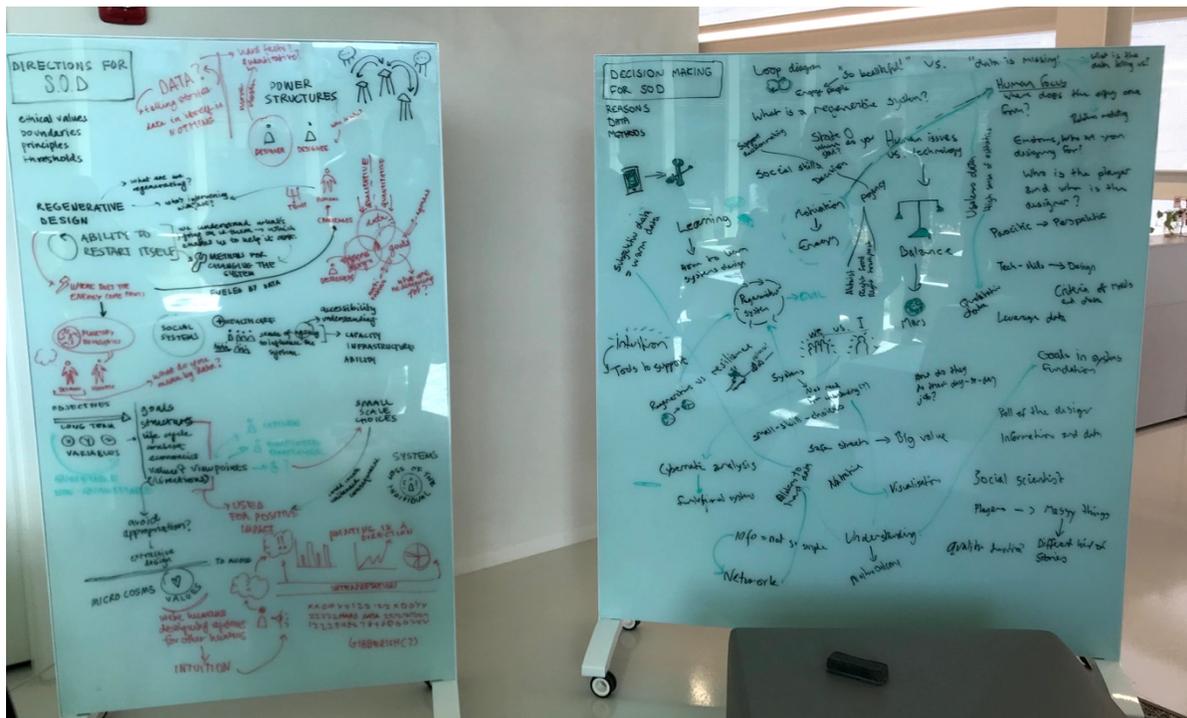


Figure 2. Visual notes taken by AHO students during the fishbowl discussion.

Both, the visual notes and the recording were used to analyze and summarize this session in response to the main two objectives and the discussion points A-C. The recorded content was transcribed to text, cleaned up and then structured and sorted in correspondence to A-C. The visual notes were used to cross-check if no content was missing. The structured content was then ordered by relevance in responding to A-C, where we ranked those citations that would offer the clearest and most unique contribution to add to the discussion. In total, 54 citations were transcribed and included in the qualitative analysis. We worked on a shared document where then all who participated and orally contributed could cross-check for accuracy of the transcription, and vote for the most relevant citations for each of A-C. Finally, we summarized all contributions for A-C by selecting for unique content and eliminating repetitions, thus shrinking the final number of the most relevant quotations to 20. These 20 quotations were then included as main summarizing statements in the documenting movie.

Results and Discussion

The format worked well. We counted between 25 and 35 people in the open space on different circles, changing by time with people coming and leaving, and about 20 people staying for the entire hour. Most started to eat their lunch and listened during our introduction and moderation, with 18 actively contributing participants moving to the center of the fishbowl to speak. Dynamics were high and the first in-out seat switches quick. At one point, one moderator freed his seat since there was more demand to speak than the two changing seats allowed for. So he left his seat and it was taken by another participant. This led to a new dynamic where then all moderators left their seats to leave them to others when they did not speak. We observed that now, with more available seats for participants, some just kept sitting and did not leave their seat anymore as the idea had been. This led to a little bit of lower “moving” dynamics in the inner circle, which the moderators let happen. But one could clearly see that the strict limitation of only two free seats fueled more lively dynamics, and towards the end, we three moderators took back our three seats to re-establish the original setting.

General interest in contributing was high, people laughed a lot, participation was interactive and lively, but people as well listened to each other and waited to let the other finish his or her speech. One could clearly see the interest in this topic, i.e. on the kind of hidden and immanent feeling of discrimination between science and design, between quantitative and qualitative data, for the overall expressed lack of clear guidance in tools and methods that would entail more data and science while keeping the creative freedom of design.

From the qualitative densening process described above, we developed this short summary to the overall fishbowl question **“When Is Systemic Design Regenerative?”**:

“A system is regenerative if it continuously restores its fundamental functions and resources. If we create those systems we need to build capacity and motivation as we have to actively maintain them. Today we focus on technology but it’s often more challenging to work with people and it’s us people who perpetuate systems through the small choices that we make. Our actions can alter systems to the positive - we have to figure out how to play with that! We need knowledge, agency and the right tools to have greater power and to create microcosms of differing values that will in longer terms lead to positive change. As designers we may have to develop the capacity to be able to cope with more information to become students of systems. The more complex they are, the more we have to look at them, regenerative systems have a life cycle temporality and multi-stable goals. In our work we deal with a lot of qualitative data including people’s experiences but there is some discrimination that we can only spot statistically. It’s necessary to mindfully look at quantitative data to develop narratives that will not only describe the characteristics of the system but also the story of the individual who struggles to adapt.”



Figure 3. Inner circle of the fishbowl with five seats being taken by the three moderators and two participants.

From this summary, we again condensed the text and developed shorter phrases as clear and inspiring take-home-message:

- Systemic Design uses mostly qualitative creativity tools to untangle complexity
- Our actions as designers can alter systems to the positive - it's us people who perpetuate systems through the small choices that we make
- A core value is to employ SD in the direction of regeneration: continuously restoring a system's fundamental functions and resources, designing as nature
- In dealing with complexity, we have to develop the capacity to cope with more information and become lifelong students of systems
- It is necessary to mindfully look at quantitative data to describe the technical characteristics of the system - but also the story of the individual who struggles to adapt
- Currencies of SD are technical - such as circularity indices or carbon flows - and social, like narratives of collective behavioral change
- We need to combine a closer attention to science and quantitative data with maintaining the qualitative designerly approach to systems - only so we can generate holistic pictures of systems
- How we manage to combine and balance hard and soft approaches will be crucial for the development of systemic design

In order to visualize the take home message in a graphical format (Figure 4), to keep it short and precise, we grouped them into values, currencies and tools (A-C), and synthesized related directions where SD is seen to move towards:

A. Values

- A core value is to employ SD in the direction of regeneration: continuously restoring a system's fundamental functions and resources, designing as nature

Condensed to:

- + Designing as and with nature to continuously restore fundamental systems functions and resources
- + *We add the social agency factor mentioned by multiple speakers:*

Designing for agency and democracy to be socially inclusive and just.

B. Directions

- Our actions as designers can alter systems to the positive - it's us people who perpetuate systems through the small choices that we make
- How we manage to combine and balance hard and soft approaches will be crucial for the development of systemic design
- In dealing with complexity, we have to develop the capacity to cope with more information and become lifelong students of systems

Condensed to:

- + It's us people who perpetuate systems through the small choices we make - let's become lifelong students of systems.
- + When dealing with complexity, designers need to develop the tools and capacity to cope with more information.
- + Balanced management of hard and soft data will be crucial for the development of systemic design.

C. Tools and Currencies

- Systemic Design uses mostly qualitative creativity tools to untangle complexity
- We need to combine a closer attention to science and quantitative data with maintaining the qualitative designerly approach to systems - only so we can generate holistic pictures of systems
- It is necessary to mindfully look at quantitative data to describe the technical characteristics of the system - but also the story of the individual who struggles to adapt

Condensed to:

- + Designerly reduction of complexity with a close attention to science
- + Mindfully quantitative when describing technical characteristics
- + Qualitative and respectful towards the stories of the individuals
- + Currencies of SD are technical - such as circularity indices or carbon flows
- + and social, like narratives of collective behavioral change

For the graphical summary of these fishbowl outcomes, we developed a simple systems graph sorted again by values, currencies and tools (A-C) and providing directions for each of this discussion focus point. The graphic in the movie is animated and allows for a step-by-step communication of the logical discussion thread (Figure 4).

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Visual notes documentation by AHO students

Shivani Prakash, Ida Margrethe Sorensen, Lene Utklev Gaupen, Palak Dudani

References

Battistoni, C., Nohra, C. G. and S. Barbero. (2019). A Systemic Design Method to Approach Future Complex Scenarios and Research Towards Sustainability: A Holistic Diagnosis Tool. *Sustainability* 11(16), 4458; <https://doi.org/10.3390/su11164458>

Berlow, E. (2010). Simplicity on the other side of complexity. TED talk
<https://www.youtube.com/watch?v=UB2iYzKeej8>

Holtz G, Alkemade F, de Haan F, Koehler J, Trutnevyte E, Chappin E, Halbe J, Kwakkel J, Luthe T, Ruutu S, Papachristos G, Yucel G. (2015). Prospects of modelling societal transitions – Position paper of an emerging community. *Environmental Innovations and Societal Transitions* 17:41-58. DOI: [10.1016/j.eist.2015.05.006](https://doi.org/10.1016/j.eist.2015.05.006).

Meadows, D. (2008). *Thinking in Systems*. Chelsea Green Publishing. ISBN 9781603580557.

Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, III, E. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. Schellnhuber, B. Nykvist, C. A. De Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P. K. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. W. Corell, V. J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, and J. Foley. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32. [online] URL: <http://www.ecologyandsociety.org/vol14/iss2/art32/>

Sevaldson, B. (2018). Visualizing Complex Design: The Evolution of Gigamaps. In: P. Jones, K. Kijima (eds.), *Systemic Design*, Translational Systems Sciences 8, https://doi.org/10.1007/978-4-431-55639-8_8

UN 2015. Sustainable Development Goals. <https://sustainabledevelopment.un.org>