The Sustainability Panopticon in the Digital Age

by

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On the Need for a Rigorous Sustainability Concept in the Digital Age

Often, when it comes to sustainability, it seems that words and deeds are far apart: On the one hand, scientific evidence leaves little doubt about the necessity to transform toward more sustainable ways of living (Kauffmann and Arico 2014): Concepts, guidelines, programs, transnational protocols and normative claims of promoting sustainability are on the rise – and so is scholarly research with ever more conferences, journals, handbooks, master’s programs and PhD schools. On the other hand, de facto unsustainable practices like, for example, emissions, wastewater and lifestyles are still increasing and so is the hunger for resources of an increasingly growth-obsessed world economy fueled by central banks’ fiat money. “Earth Overshoot Day, for example, is getting earlier and earlier (2009: Sept. 25; 2014: Aug. 19). Paradoxically, it seems that the louder the call for a transformation toward sustainability, the less heard it is and the fewer achievements are made. In the literature, this situation has been described as a “sustainability gap” (Lubin and Esty 2014). This gap or inconsistency may result in resignation among those working toward sustainable development. On the other hand, it can be used as wake-up call to develop more rigorous concepts of sustainability. In this note, I follow the latter to advance sustainability theory by suggesting a digital and transparent monitoring system that closes – or at least shrinks – the gap between words and deeds. Furthermore, standardization along a taxonomic software code enables comparability and thus improves impact measurement. Hence,
this proposal contributes to Miller et al.’s call to advance sustainability science by addressing “socio-technical change” (2013: 239).

Sustainability and digital data seen through Panopticon theory

I propose combining three principal parameters as major trends of the digital age to address the future of sustainability science (Miller et al. 2013): transparency, Big Data and surveillance. I amalgamate the three under the roof of sustainability to arrive at a technology-enhanced concept of sustainability using intelligence as applied for national security (National Security Agency (NSA)) but for the purpose of sustainability. The theoretical framework to organize this amalgamation toward consistency in word and deed regarding sustainability is the philosophical theory of the Panopticon as put forward in the 18th century by Jeremy Bentham. What started as a philosophical essay on the architecture of institutional buildings like prisons, schools, factories and hospitals (Bentham 1787, here 2008) has since been the subject of continual debate and reformulation. In this note, I build on the historiographical classification scheme of Panopticon theory as put forward by Dobson and Fisher (2007). They distinguish between three avenues of Panopticum theories. I follow Dobson and Fisher with their three phases of Panopticon theory and propose a turn toward sustainability making use of the latest, digital post-NSA phenomena of “dataveillance” and digital Panopticon (Han 2013) to strive more effectively for sustainability.

Panopticon I: Object of information, but not subject in communication

Philosopher Jeremy Bentham, when writing his original book Panopticon in 1787, created the theory of the “inspection house.” Bentham developed his idea by designing an architectural concept for institutional buildings like prisons, schools, hospitals and factories. The core of the idea involves the arrangement of single rooms in a circular building. At the center of the circle, we find the inspection house where a watchman can see every room. The important effect is that
inmates cannot tell whether or when they are being watched. However, by possibly being watched, they behave as if they are being watched. This is why the Panopticon observation is called self-regulatory discipline (Downing 2008: 82); even if not watched at a specific moment, the inmates assume they are being watched. According to Bentham, the effect is the following: “Morals reformed—health preserved—industry invigorated—instruction diffused—public burthens lightened—Economy seated, as it were, [...] all by a simple idea in Architecture!” (Bentham 1787: xx). As a child of the Enlightenment, Bentham considered this model as a just and economically beneficial solution to societal problems. Next to critics calling the Panopticon a “tool of oppression and social-control” (Himmelfarb 1965), the most famous recipient of Bentham (who did not, however, advance the idea further as in Panopticon II or III) was Foucault. He took the concept of the Panopticon to develop the idea of “disciplinary societies” as apparatuses of power (Foucault 1975). Foucault describes Bentham’s Panopticum aptly when he says that the inmate always is the object of information, but never a subject in communication. For Foucault, the inmate “becomes the principle of his own subjection” (1975: 203).

Panopticum II: Zuboff’s Information Panopticon

In Dobson and Fisher’s classification of Panopticon theories, Panopticon II is characterized by the ideal of surveillance in the information age. Panopticon II is basically developed in the book In the Age of the Smart Machine (1984), in which Harvard Business School professor Shoshana Zuboff presents the theory of the “Information Panopticon,” where everything is recorded. Supervision (in Zuboff’s example the work environment of a corporation) in the Information Panopticon is monitored by a computer; every worker’s performance is monitored and evaluated based on data. This computer-controlled supervision “can provide the computer age version of universal transparency with a degree of illumination that would have exceeded even Bentham’s most outlandish fantasies. Such systems can become information panopticons that, freed from the constraints of space and time, do not depend upon the physical arrangement of buildings or the
laborious record keeping of industrial administration. They do not require the mutual presence of objects of observation. They do not even require the presence of an observer” (Zuboff 1984: 322). It becomes clear why Panopticon II is so different from Bentham’s original idea; the transparency accessible to the watchmen in the inspection tower becomes universal with computational digital technology based on information. Zuboff calls this the “yearning for omniscience” that allows for “predictability and control” (Zuboff 1984: 348). In Zuboff’s Information Panopticon, those under observation are motivated by the benefits provided by taking part. This dual nature of the Information Panopticon is represented by the Benthamian notion of being under surveillance but at the same time observing others and reporting their behavior. In other words, in Panopticon II everyone has the capacity to be simultaneously an inmate and a watchman. Furthermore, in Panopticon II, all inmates know that their performance is monitored all the time, unlike in Bentham’s Panopticon, where the watchman might watch the inmates but can never watch them all at the same time. Finally, the computer observing the participants only measures standardized data points, which offers a more objective judgment than the watchman in the inspection tower in Bentham’s Panopticon.

Panopticon III: Digital Ubiquity Beyond Institutional Architecture

The third phase of Panopticon theory includes human tracking systems and is put forward by Dobson and Fisher. By adding surveillance via digital tracking systems, it is possible to expand the scope of the Panopticon from institutional architectures like prisons, schools, factories and hospitals (Panopticon I) and two-way digital communication within organizations (Panopticon II) to any human being outside organizations, like children, parents, employees, neighbors and even strangers. Furthermore, due to the extremely low cost of less than $500 US per year (Dobson and Fisher 2007), observation and surveillance become available to ordinary citizens. Hence, the major contribution of Panopticon III is its digital ubiquity with observation of any individual, known or unknown.
Panopticon Theory and Beyond: Pseudo-Panopticon, Synopticon and Post-Panopticism

In addition to the three types of Panopticon theories, scholars have discussed theoretical approaches that go beyond the basic idea of the panoptical observation (Lyon 2006). I will discuss the three most important of them. Post-Panopticism (Haggerty 2006) is a term created by scholars claiming “historical as well as logical limits to the usefulness of panoptic imagery today” (Bauman and Lyon 2013: 52) as we live in a time of what they call “liquid modernity” leading to “liquid surveillance.” In their book from 2013 (however written in 2011 before the Edward Snowden-NSA disclosures), Bauman and Lyon underestimate the power play of digital and Big Data-driven surveillance imposed by marketing-driven consumer research (Gandy 1993; Andrejevic 2004) and governmental intelligence agencies as disclosed by Wikileaks and the Snowden documents on the NSA. Hence, we may state here: Given the latest disclosures of governmental intelligence or internet giants like Google applying algorithm-based “datavillance” (Haggerty and Ericson 2000), Panopticon theory indeed brings us back to Bentham’s original idea of a central inspection tower and the self-regulatory discipline of the observed who know that they are observed. This agency idea actually is a cornerstone on which the Digital Sustainability Panopticon builds in the next chapter.

Second, the notion of Pseudo-Panopticon brings us to sustainability. Coombs and Holladay (2013) criticize corporate social responsibility (CSR) and sustainability communication as creating an illusion through a Pseudo-Panopticon. Their critique builds on the assumption that the transparency created in internet-based sustainability reporting is believed to be credible, whereas Coombs and Holladay claim that it is not and that very few activist groups create databases that help citizens “figure out which companies are polluting the air in their neighborhood” (2013: 213). The Pseudo-Panopticon, however, builds on what is described above as Panopticon I with the original contribution of Bentham and the interpretation of Foucault. The concept criticizing
Corporate sustainability is important to advance the Digital Sustainability Panopticon proposed here.

A third important avenue of going beyond Panopticon theory, also crucial to developing the Digital Sustainability Panopticon, is the extension toward synopticon. Synopticon refers to the surveillance of the few by the many constituting a “viewer society” (Mathiesen 1997). What was meant to deconstruct and replace the Panopticon imagery by reversing the perspective of the single watchman observing the many to the many (theater audience, media consumers) observing the few (actors, celebrities, politicians) added to the theoretical avenue of post-Panopticism (Boyne 2000). However, given the possibilities of the digital age (Schmidt and Cohen 2013), we may add what is referred to as social media (“candy” and “shit” storm), where the synopticon becomes reality in a digital Big Data-driven way.

Digital Sustainability Panopticon: Transformative Potential and Empowerment

Based on the different types of Panopticon, I propose to reconceptualize the transformation toward a (more) sustainable world through the theoretical lens of Panopticon adapted to the digital age. Thus, the digital revolution characterized by “hyper-communication” leading to a “transparency society” (Han 2013: 92) may be used to trigger and monitor sustainability on a large scale. On scientific grounds, we know rather well how unsustainably we manage our planet regarding social and environmental issues, particularly when looking at future generations. All major sustainability stakeholders are asked to contribute:

1. Political actors – local, national as well as transnational – discuss and regulate the thin line (or overlap) between economic prosperity and sustainable development. They govern local, national and transnational programs and protocols regulating environmental standards and human rights declarations. Also, they impose sanctions if necessary.
2. **Corporations** address their CSR and increasingly disclose their non-financial performance in a new genre called “sustainability reporting,” which is now also available with a digital XBRL taxonomy (see below).

3. **Consuming citizens** make everyday purchasing decisions that may or may not contribute to sustainability. Here, smartphone apps like ecoscan or boycott, with their existing capability and technology, can evaluate the sustainability criteria and performance of every product having a barcode. Furthermore, every citizen as a possible social media user can act as a civil watchman contributing to the synopticon aspect.

4. **Activists and non-governmental organizations** (NGOs) independently assess sustainability performance regarding environmental and social issues.

5. **Media**, as watchdogs selling news and stories, amplify and disseminate positive and negative cases.

6. **Researchers** generate (possibly objective) data, methods, theories, case studies and results to advance sustainability science (Kates et al. 2001, Komiyama et al. 2011) as transdisciplinary scientific monitoring and idea generators for the transformative process (Kajikawa 2008, Wittmayer and Schäpke 2014).

7. **Future generations**, as teleological corrective for present actions, will also refer to the Brundtland definition (WCED 1987) of sustainable development and teaching sustainability for future decision makers (Yarim et al. 2012).

One common denominator for all actors involved is promoting the Digital Sustainability Panopticon: production of data. With the increasing prevalence of sustainability reporting (Gatti and Seele 2014), corporations have developed ways to measure and disclose sustainability data. The global reporting initiative (GRI) is an NGO that provides guidelines for the standardization of sustainability reports. The latest move referencing the digital age is that GRI developed an XBRL taxonomy for sustainability (Watson and Monterio 2011; Seele 2014). XBRL is a software-based reporting language used since 2010 as mandatory by the U.S. Securities and Exchange
Commission (SEC) to report digital financial data to regulators. A second important element of the Digital Sustainability Panopticon can be seen in the internet protocol version 6, which allows for almost indefinite web addresses. Adding radio frequency identification (RFID) chips that make literally everything a sender and thus a contributor to hyper-communication, we arrive at what is referred to as the “internet of things.” As Han claims, this digital Panopticon is the digital fulfillment of Bentham’s Panopticon (2013: 96).

Expanding this new digital world toward sustainability enables regulators and other stakeholders to rigorously observe and compare sustainability performance – and if required force non-sustaining actors into sustainable action. Technically, we are at the brink of digital sustainability by technological means. What is missing, however, is a comprehensive theoretical framework and – if arrived at by means of deliberate democracy – a regulatory framework to control and if necessary sanction harmful activities. This framework can be seen – among other possible frameworks – in Bentham’s philosophy of the Panopticon and its technological updates, extensions and applications. I therefore conceptualize the Digital Sustainability Panopticon as follows to obtain a holistic sustainability transformation:

1. **Digitalization** of all relevant sustainability data in a unified taxonomy. XBRL offers a suitable option, but other standards or taxonomies are conceivable as well.

2. **Internet of things goes sustainability.** Given RFID chips together with unlimited internet protocol v. 6 web addresses, every data point can be linked by hyper-communication to the unified sustainability database.

3. **Transparent disclosure** of all digital sustainability data following the idea of open access.

4. **Big Data-driven algorithmic monitoring** of digital sustainability data by suitable sustainability watchmen (Panopticon I). Here, creation of a transnational sustainability agency (TSA) can be discussed as part of a mandate of the United Nations or other supranational organization.

5. **Digital ubiquity** provides real-time, low-cost tracking of sustainability performance (Panopticon III).
6. *Open discourse and deliberation* on sustainability progress across all channels involving all sustainability stakeholders (Panopticon II) integrating social media hyper-communication (synopticon).

Bentham’s visionary idea that inmates cannot tell if they are watched or not and thus behave as if they are watched is fulfilled by dataveillance in a much more rigorous way because everyone knows that they are watched, recorded and data analyzed. Given a positive vision with a normative teleology such as sustainability, this effect that was rightly criticized as a possible instrument of oppression and social control (Himmelfarb 1965) nevertheless bears the vision of a collective enforcement mechanism toward sustainability. While Foucault suggests that self-enforcement in the Panopticon (here Panopticon I) as the inmate “becomes the principle of his own subjection” (1975: 203), we can turn this into a positive idea of deliberately arriving at a digital technology-enhanced empowerment system rigorously reducing unsustainable behavior.

Given the not yet fully discovered and understood parameters and consequences of the digital age, we may, however, state that the entire world has already become a digital Panopticon, which we are slowly beginning to understand thanks to Wikileaks and the Edward Snowden documents. Moreover, we are all inmates (Panopticon I) as well as watchmen (Panopticon II) at the same time and traceable everywhere (Panopticon III). By dedicating dataveillance to sustainability, however, we may have a chance to use the Digital Sustainability Panopticon – to use Bentham’s famous words – as a mill for grinding the unsustainable sustainable.

Limitations and Outlook

As with any new theory, the Digital Sustainability Panopticon can be used in different ways regardless of the intentions behind its creation. If ever a Digital Sustainability Panopticon is put in place, it would be only a small step to also create harmful sustainability big brother totalitarianism. This is why the Habermasian ideal of deliberative democracy is such an important
ingredient to arrive at a system as proposed. Nevertheless, once in place, it still can be used as a tool of totalitarianism. This would lead to a conflict with one of the core values of open societies and deliberative democracy: freedom. A second limitation of the theoretical concept is political particularism. It is difficult to believe that the dream to enlighten all peoples to become brothers in sustainability will become reality. It is more than likely that individual players (countries, corporations, individuals) will opt for more profitable rent-seeking and against sustainability strategies. If that opportunistic particularism happens, all others dedicating themselves to the idea would face competitive disadvantages. Technically, the concept would face challenges in standardizing sustainability data. While environmental data are well measurable on scientific grounds, human rights violations, for example, are more difficult to measure in a meaningful way. Finally, in dataveillance, only observations that can be measured and coded digitally are made. It remains a challenge to translate everything of importance into digital codes. Nevertheless, it is worth moving in the direction of transformative sustainability and tackling the challenges in sustainability-oriented trade-off decisions.

As the concept of a Digital Sustainability Panopticon is a theoretical framework, future research and steps toward application need to be discussed and undertaken. Most of all, a digitally unified sustainability taxonomy must be implemented on a large if not global scale. Here, international organizations, and particularly the United Nations, are asked to claim ownership of the idea and perhaps create an agency to monitor and enforce this strong sustainability. Second, the topic of voluntary and/or mandatory sustainability should be addressed in research and political discourse. Last, computer simulations working with unified sustainability data may help advance steps toward transformative sustainability.

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