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Critiquing the Social Construction of Technology: Now Redundant?

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Sumitran Basu's article, "Three Decades of Social Construction of Technology: Dynamic Yet Fuzzy? The Methodological Conundrum" (2022), brings a critical outlook on what the Social Construction of Technology (SCOT) is and how it should be.<sup>1</sup> Basu's piece not only recognizes the dynamic, resilient, and malleable nature of SCOT, but also how SCOT compromised its own vision of being a standout theory in technology studies. The piece takes up the historical trajectory of SCOT, its subsequent criticisms from a range of scholars, the response of SCOT's founding contributors and, finally, Basu's critique of SCOT's operational difficulties and explanatory dilemmas (13).

My engagement with Basu's article echoes the conundrums researchers face in interdisciplinary studies. In my response, I neither defend SCOT nor take up a particular criticism. Instead, I will explain why and how SCOT should help to foster a system-based approach with the likes of Martin Heidegger, Langdon Winner, and others in the broader tradition of social theory.

### **Blending Social Theories of Technology**

In responding to Basu's piece, I find undesirable the impulse to throw SCOT under the bus for its operational difficulties. Basu posits that the transition of SCOT from a 'why' question to a 'how' question explains SCOT's proponents' difficulties in maintaining a methodological distinctiveness from other traditions like Actor Network Theory (ANT). Certainly, it is commendable of SCOT's founders to lend a tool to give seemingly less imaginative graduate students a head start on research projects! Still, I do not see how critics consider SCOT a hindrance to imagination and creativity. Garnering consequential empirical work makes SCOT a productive framework and the criticism suggests that the method itself opened a path to meaningful scholarly contributions.

Basu provides an explanation, albeit with little evidence, that blending SCOT into traditional theories offers a better chance of creating a more robust theory. But is Basu's idea different from what Winner (1993), Stewart Russell (1986), and other critics argued much earlier? I refer here to the lack of a coherent picture coming from SCOT's critics. Basu reviews how sociologists give different arguments on how to assess SCOT with existing theories, or blend it with the same, to produce a more expansive outlook. My question, then: What does Basu's piece offer other than another low-key criticism of SCOT?

Basu ends his criticism by pointing out what he thinks SCOT misses. However, his solution seems no different than those critics who advocated for SCOT's collaboration with extant social theories. The most blunt response, according to Basu, comes from Russell who advocated for explaining technological changes at the industry level in order to identify capitalist interests (5).

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<sup>1</sup> Wiebe Bijker's overview of the Social Construction of Technology can be found in the *International Encyclopedia of the Social & Behavioral Sciences* (Second Edition), 135-140, 2015. Please refer to: <https://www.sciencedirect.com/topics/social-sciences/social-construction-of-technology>.

### **SCOT's Missing Elements?**

I find it odd that SCOT missed out on many crucial elements of social, historical, and structural approaches raised by the critics. I wonder how SCOT's developers could not (or, more likely, could) anticipate such a backlash. Missing, surprisingly, from SCOT's critics' accounts is why, or if, the pre-SCOT technology studies tradition revealed anything beyond a linear one-dimensional model of technological development. Given SCOT's scholars' claims that they departed from the earlier tradition of technology studies by conventional sociology, it is also important to ask SCOT's critics about the problems with a broad system theory approach in explaining the development of technology. Additional questions arise: What questions were being asked by conventional sociology and the history of technology before SCOT? What does SCOT uniquely ask? What questions ought to be asked post-SCOT by SCOT's critics and STS scholars alike?

SCOT's scholars have pointed out their dismay toward conventional sociological and historical approach to studying technology. Bijker (2010) articulates the primary concern of the constructivist approach—to ask how technology gets made. Doing so brings crucial and dynamic stories of how, for example, the bicycle was devised or Bakelite bulbs came to exist. SCOT does indeed miss crucial elements as pointed out by critics; still, SCOT positions itself in a manner to address critics' normative proposals.

### **Structure and Agency**

Basu gives the example of Werner Rammert's (1997) work on how the problem of the structure/agency dichotomy persists and thereby led him to theorize a bridging concept of techno-structuration drawing from the structuration theory of Giddens (Basu 2022, 5). We should give credit to SCOT's scholars for their ignorance while blessing it and, so, encouraging scholars to raise criticisms and pave the way for a better theory by incorporating elements from traditional and conventional theories. By contrast, SCOT prompted scholars and critics alike to react quickly to what a seemingly naïve theory might miss regarding the questions raised by studying microdomains. In this way, SCOT served as a basis for imaginative thinking in sociology.

While SCOT's critics pored over methodological and theoretical difficulties, SCOT's researchers scrambled to add element after element—a move which led the program astray. Here, I agree with Basu. And while I sympathize with SCOT's desire for greater coherence, I would keep SCOT as it is. The amount of scholarly criticism itself would have been sufficient for SCOT to center itself as the root of understanding a particular technology while influencing traditional macro-theories to come to terms with it in order to explain the social and technical change. SCOT does not need to consolidate with extant social theories; rather, such theories should seek the resources of SCOT. This proposal speaks to my earlier point regarding interdisciplinary difficulties. Although STS turned into a full-fledged scholarly discipline, it remains marred with the problems that scholars feel in terms of their particular methodological and sub-disciplinary allegiances unlike established disciplines where people readily identify as sociologists, anthropologists, the like.

STS does not possess paradigmatic theories like interactionist or functionalist theories of sociology. STS theories and methodologies feed on certain traditional sociological and political traditions. Despite that, STS maintains very strong disciplinary differences from core system thinking and that lends sufficient flexibility to think not in terms of the core sociological dialogues, but rather to create new tools to identify technological change. Such a position comes with both pros and cons as the criticisms of both SCOT and ANT show. By not restricting its approach in terms of extant social theories, SCOT's founders left themselves unbridled from the disciplinary status quo and open the possibilities for micro-sociological technology studies. Still, such studies garnered criticisms and recommendations on if it could do better by extending its methodological and theoretical processes.

### **Micro-Sociological Studies of Technologies**

SCOT's founders need not add conceptual tools to justify the criticism to make its approach look more viable. Instead, the approach should be to invite the extant social theorists to consider what SCOT offers. For example, the construction of modern foot-over bridges in the global south could be interpreted as the vision of making a global city, and the foot-over bridge serves as the middle-class vision of the infrastructure landscape. Multiple meanings are associated with the foot over-bridge. A foot over-bridge for whom? Whose ideas and perceptions regarding a grand artifact like a foot over-bridge are taken into consideration?

A micro-sociological study of the foot over-bridge could be a beneficial means for working through competing accounts of how both a gradual social change is happening at the level of a particular artifact and how the bridge serves as a powerful political tool used by the technocrats to maintain the existing neoliberal social contract imagined through a particular infrastructure. How the bridge is ordering a form of organic solidarity, if we have to talk in terms of a functionalist perspective, also could be helpful. The foot over-bridge, which is a quintessential urban component, could inform us a lot about the structure of the city where people interact. How the city dwellers come into cooperation to get the bridge done and how the middle-class vision of a global city is being identified through the bridge could be studied from a constructionist perspective.

If the addition of novel elements was not helpful in SCOT's earlier iterations, it is not going to be helpful for SCOT's theorists to collaborate with broad social theories. To understand organic solidarity, one need not look at the foot over-bridge. Simply identifying the neoliberal technological changes would probably be sufficient. However, if the conflict perspective could tell us anything regarding a particular artifact, then one might turn to SCOT to understand if the foot over-bridge is actually perpetuating the existing inequalities in a new modern way of infrastructure development.

I find a certain redundancy in the criticisms of SCOT. To date, no consensus exists about how SCOT could be applied in order to explain what it sought to answer while being attentive to its shortfalls. At this point, critiquing SCOT feels like a fashionable thing to do,

especially in contemporary technology studies—similar to how many social scientists take jabs at positivism at some point in their scholarship.

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